



June 9, 2020

Reference No. 038443-320

Mr. Robert Thompson  
 Remedial Project Manager  
 United States Environmental Protection Agency  
 Region V  
 77 West Jackson Boulevard  
 Mail Code SR-6J  
 Chicago, Illinois  
 60604

Dear Mr. Thompson:

**Re: Floodplain Soil Investigation – Sampling Results  
 South Dayton Dump and Landfill Site, Moraine, Ohio (Site)**

This letter provides the results of the soil sampling conducted in the Great Miami River (GMR) floodplain area near the South Dayton Dump and Landfill Site (Site) in November 2019. GHD has prepared this letter on behalf of the Respondents to the Administrative Settlement Agreement and Order on Consent (ASAOC) for Remedial Investigation/Feasibility Study (RI/FS), Docket No. V-W-16-C-011 (Respondents).

The floodplain soil sampling conducted in 2019 includes nine locations in the area adjacent to Operable Unit 1 (OU1). The sample locations were proposed based on the results of prior sampling conducted in 2018, which were presented in the Site Characterization Technical Memorandum for the Soil/Fill and Soil Gas Investigation (SCTM Report) dated July 17, 2019.

This letter also provides an assessment of the results for floodplain soil samples collected to date, which includes samples collected in the floodplain area adjacent to OU1 in 2018 and 2019; and samples collected in the upstream floodplain area in 2018.

The floodplain soil sample locations are shown on the following figures:

- Figure 1 shows the general layout of the soil sample locations.
- Figure 2 shows the soil sample locations adjacent to OU1.
- Figure 3 shows the soil sample locations upstream of the Site.

## **1. Field Sampling Activities - 2019**

Soil samples were collected from the floodplain area adjacent to OU1 on November 14, 2019 at the locations shown on Figure 2. GHD collected 20 surficial soil samples (including QA/QC) from nine locations (SS-178 through SS-186). Soil samples were collected from two depth intervals (0 to 0.5 feet and 0.5 to 2 feet below ground surface (feet BGS)) at each location and were submitted for



laboratory analysis of semi-volatile organic compounds (SVOCs), metals, polychlorinated biphenyls (PCBs), and carbon<sup>1</sup>. The sampling activities were conducted in accordance with the procedures established in the RI/FS Work Plan and as proposed in the SCTM Report. Table 1 presents material descriptions and field screening results for each 2019 sample location.

As discussed in the SCTM Report, the 2018 soil sample locations were positioned adjacent to OU1 including the alignment of an existing drainage channel that runs parallel to the OU1 boundary. The 2019 sample locations were generally offset from the 2018 sample locations, to characterize conditions in the floodplain area adjacent to the GMR. One soil sample location (SS-178 shown on Figure 2) was originally proposed to be conducted in 2018 but could not be completed at that time due to water level conditions. This sample location was included in the 2019 sampling event.

## **2. Analytical Results - 2019 Soil Samples**

Soil samples were collected from the floodplain area adjacent to OU1 and submitted for laboratory analysis as described above. GHD reviewed the analytical laboratory deliverables for data validation purposes per the RI/FS Work Plan. GHD's data validation report for floodplain soil samples collected in 2019 is included in Attachment A. The results of GHD's assessment were used to identify data qualifiers for inclusion in the analytical database, as presented in the data tables within this letter.

The validated analytical results for floodplain soil samples collected in 2019 are included in the following tables:

- Table 2a includes the analytical results for all parameters that were analyzed.
- Table 2b includes the analytical results for detected parameters.

As shown in Table 2b, the detected parameters include various SVOCs, metals, and PCBs. The most frequently detected parameters include PAHs and metals. PCBs were detected infrequently. These findings are consistent with the results from the floodplain soil samples collected in 2018. GHD compared the analytical results to screening values as described below.

## **3. Screening Comparison**

GHD compiled the 2018 and 2019 floodplain soil sample results for comparison to screening values including Regional Screening Levels (RSLs) and Ecological Screening Values (ESVs). The screening

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<sup>1</sup> Soil samples were analyzed for black (soot) carbon and total organic carbon (TOC) to support the risk assessment.



values are based on conservative generic assumptions and are used for initial screening. The results of the screening comparison are shown in the following tables:

- Table 3 includes the analytical results for detected parameters in floodplain soil samples adjacent to OU1 compared to RSLs (industrial and residential).
- Table 4 includes the analytical results for detected parameters in floodplain soil samples adjacent to OU1 compared to ESVs.
- Table 5 includes the analytical results for detected parameters in upstream floodplain soil samples compared to RSLs (industrial and residential).
- Table 6 includes the analytical results for detected parameters in upstream floodplain soil samples compared to ESVs.

### 3.1 Floodplain Soil Adjacent to OU1

The detected parameters with maximum concentrations greater than RSLs (as shown in Table 3) include four SVOCs, seven metals, and two PCBs listed below. No other parameters (VOCs, pesticides, herbicides, cyanide) were detected at concentrations greater than RSLs.

Parameter	Maximum detected concentration	Units	Detection frequency	RSL (residential)
Benzo(a)anthracene	1,900	µg/kg	46/46	1,100
Benzo(a)pyrene	1,600	µg/kg	46/46	110
Benzo(b)fluoranthene	2,700	µg/kg	46/46	1,100
Dibenz(a,h)anthracene	190	µg/kg	36/46	110
Aluminum	14,000	mg/kg	46/46	7,700
Arsenic	12	mg/kg	46/46	0.68
Chromium VI	0.81 (estimated)	mg/kg	8/46	0.3
Cobalt	9.7	mg/kg	46/46	2.3
Iron	25,000	mg/kg	46/46	5,500
Manganese	690	mg/kg	46/46	180
Thallium	0.49	mg/kg	46/46	0.078
Aroclor-1248	4,600	µg/kg	6/46	230
Aroclor-1254	860	µg/kg	33/46	120

GHD's observations based on review of the tabulated analytical results compared to ESVs (Table 4) are summarized as follows:

- VOCs with maximum detected concentrations greater than ESVs include acetone (in two soil samples) and methylene chloride (in one soil sample). These compounds are commonly considered to be laboratory contaminants.



- Multiple SVOCs were detected at concentrations greater than ESVs. All detected SVOCs have maximum concentrations greater than ESVs with the exception of benzaldehyde, dibenzofuran, naphthalene, and phenol
- Multiple metals were detected at concentrations greater than ESVs. All detected metals have maximum concentrations greater than ESVs with the exception of aluminum, beryllium, calcium, cobalt, magnesium, potassium, and sodium
- Other parameters that were detected at concentrations greater than ESVs include pesticides (4,4'-DDE; 4,4'-DDT; Endosulfan sulfate; Alpha chlordane; gamma-BHC (lindane); Heptachlor epoxide; Toxaphene); herbicides (2,4,5-TP (silvex)); and cyanide; all of which were infrequently detected, i.e., in less than 10 percent of samples

### 3.2 Upstream Floodplain Soil

The detected parameters with maximum concentrations greater than RSLs (as shown in Table 5) include one SVOC, six metals, and one PCB listed below. No other parameters (VOCs, pesticides, herbicides, cyanide) were detected at concentrations greater than RSLs.

Parameter	Maximum detected concentration	Units	Detection frequency	RSL (residential)
Benzo(a)pyrene	540	µg/kg	18/18	110
Aluminum	13,000	mg/kg	18/18	7,700
Arsenic	10	mg/kg	18/18	0.68
Cobalt	13	mg/kg	18/18	2.3
Iron	23,000	mg/kg	18/18	5,500
Manganese	1,000	mg/kg	18/18	180
Thallium	0.40	mg/kg	18/18	0.078
Aroclor-1254	3,300	µg/kg	16/18	120

GHD's observations based on review of the tabulated analytical results compared to ESVs (Table 6) are summarized as follows:

- Multiple SVOCs were detected at concentrations greater than ESVs. All detected SVOCs have maximum concentrations greater than ESVs with the exception of butyl benzylphthalate, dibenzofuran, fluorene, and naphthalene
- Multiple metals were detected at concentrations greater than ESVs. All detected metals have maximum concentrations greater than ESVs with the exception of aluminum, beryllium, calcium, cobalt, magnesium, potassium, and sodium

Other parameters that were detected with maximum concentrations greater than ESVs include pesticides (4,4'-DDD; 4,4'-DDE; 4,4'-DDT) and cyanide; all of which were infrequently detected.



### 3.3 Screening Summary

The screening comparison discussed above is summarized as follows:

- VOCs were infrequently detected in floodplain soil samples adjacent to OU1 and were not detected in upstream soil samples. VOCs were not detected in any soil samples at concentrations greater than RSLs. VOCs that were detected with maximum concentrations greater than ESVs include acetone (in two soil samples adjacent to OU1) and methylene chloride (in one soil sample adjacent to OU1). These compounds are commonly considered to be laboratory contaminants.
- Multiple SVOCs, primarily including PAHs, were detected in both floodplain soil samples adjacent to OU1 and in upstream soil samples:
  - The detected SVOCs with maximum concentrations greater than RSLs in soil samples adjacent to OU1 include: benzo(a)anthracene; benzo(a)pyrene; benzo(b)fluoranthene; and dibenz(a,h)anthracene
  - The detected SVOCs with maximum concentrations greater than RSLs in upstream soil samples include: benzo(a)pyrene
  - Multiple SVOCs, primarily including PAHs, were detected with maximum concentrations greater than ESVs in samples adjacent to OU1 and upstream samples
- Multiple metals were detected in both floodplain soil samples adjacent to OU1 and in upstream soil samples:
  - The detected metals with maximum concentrations greater than RSLs in soil samples adjacent to OU1 include: aluminum, arsenic, chromium VI, cobalt, iron, manganese, and thallium
  - The detected metals with maximum concentrations greater than RSLs in upstream soil samples include: aluminum, arsenic, cobalt, iron, manganese, and thallium
  - Multiple metals were detected with maximum concentrations greater than ESVs in samples adjacent to OU1 and upstream samples
- PCBs were detected in floodplain soil samples adjacent to OU1 and in upstream soil samples:
  - The detected PCBs with maximum concentrations greater than RSLs in soil samples adjacent to OU1 include: Aroclor-1248 and Aroclor-1254
  - The detected PCBs with maximum concentrations greater than RSLs in upstream soil samples include: Aroclor-1254
- Pesticides were infrequently detected in floodplain soil samples adjacent to OU1 and in upstream samples. Pesticides were not detected in any samples at concentrations greater than RSLs. Pesticides were detected in some samples (adjacent to OU1 and upstream) at concentrations greater than ESVs.



- Herbicides were detected one soil sample adjacent to OU1. The detected concentration is greater than the ESV but less than the RSL.
- Cyanide was detected in one soil sample adjacent to OU1 and three upstream soil samples. The detected concentrations are greater than the ESV but less than the RSL.

#### **4. Statistical Evaluation**

GHD completed a statistical evaluation of the floodplain soil sample results involving comparison of the analytical results for soil samples collected upstream of the Site ("Upstream" samples) with the results for samples collected adjacent to OU1 ("Adjacent" samples). The evaluation, presented in Attachment B, includes an initial assessment based on the 2018 sample results; and further assessment based on the combined 2018 and 2019 sample results.

In addition, the evaluation considers differences between the results of the two different sample depth intervals that were collected at each location which typically includes the upper 6-inch interval ("Shallow" sample) and the deeper 0.5 to 2 foot interval ("Deep" sample). The results of the statistical evaluation for Shallow vs Deep results for Adjacent samples are summarized as follows:

- The comparison of Shallow vs Deep sample results in the 2018 data set identified no significant differences with the exception of two metals (potassium and selenium). In both cases the Shallow concentrations were determined to be greater than the Deep concentrations.
- The comparison of Shallow vs Deep sample results in the combined date set (2018 and 2019) identified no significant differences with the exception of one SVOC (benzo(b)fluoranthene) and one metal (potassium). In both cases the Shallow concentrations were determined to be greater than the Deep concentrations.

The comparison of Upstream vs Adjacent sample results in the 2018 data set identified significant differences for various parameters:

- Thirteen SVOCs (2-Methylnaphthalene, anthracene, benzo(a)anthracene, benzo(b)fluoranthene, carbazole, chrysene, dibenzofuran, di-n-butylphthalate, fluoranthene, fluorene, naphthalene, phenanthrene, pyrene) were determined to have greater concentrations in the Adjacent samples
- Two metals (calcium, selenium) were determined to have greater concentrations in the Adjacent samples and conversely 12 metals (aluminum, barium, beryllium, chromium, cobalt, iron, manganese, mercury, nickel, potassium, thallium, vanadium) were determined to have greater concentrations in the Upstream samples
- One PCB (Aroclor-1254) was determined to have greater concentrations in the Upstream samples



The comparison of Upstream vs Adjacent sample results in the combined data set (2018 and 2019) identified significant differences for various parameters:

- Fifteen SVOCs (2-Methylnaphthalene, anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, carbazole, chrysene, dibenzofuran, di-n-butylphthalate, fluoranthene, fluorene, naphthalene, phenanthrene, pyrene) were determined to have greater concentrations in the Adjacent samples
- Two metals (calcium, selenium) were determined to have greater concentrations in the Adjacent samples and conversely 18 metals (aluminum, arsenic, barium, beryllium, cadmium, chromium, cobalt, copper, iron, lead, manganese, mercury, nickel, potassium, silver, thallium, vanadium, zinc) were determined to have greater concentrations in the Upstream samples
- One PCB (Aroclor-1254) was determined to have greater concentrations in the Upstream samples

## **5. Summary and Recommendations**

The GMR floodplain soil investigation completed in 2018 and 2019 includes collection of soil samples from 21 locations adjacent to OU1 and eight locations upstream of the Site. Two samples were collected at each location, from the upper 6-inches of soil and from the underlying soil (0.5 to 2 feet BGS). The samples collected in 2018 were analyzed for VOCs, SVOCs, PCBs, pesticides, herbicides, metals and cyanide. Based on the 2018 results additional samples were collected in 2019 from the area adjacent to OU1 and analyzed for SVOCs, PCBs, and metals.

The most frequently detected parameters in the soil samples include SVOCs (primarily PAHs), various metals, and PCBs (Aroclor-1254). Other parameters (VOCs, pesticides, herbicides, cyanide) were infrequently detected. The screening comparison identified detected concentrations greater than RSLs and/or ESVs in soil samples collected from both the area adjacent to OU1 and upstream of the Site, as summarized in Section 3.3.

The statistical evaluation indicates that the floodplain soil adjacent to OU1 contains SVOCs (primarily PAHs) at concentrations that are elevated in comparison to upstream conditions. PCBs were infrequently detected except for Aroclor-1254, which was found in samples adjacent to OU1 and upstream of the Site. Metals were frequently detected and do not appear to be elevated in samples adjacent to OU1. Other organic parameters were infrequently detected in samples collected adjacent to OU1 as well as upstream samples. Hence the data indicates that floodplain soil conditions adjacent to OU1 are not significantly different than upstream conditions, with the possible exception of some SVOCs.

Based on the above GHD recommends that the analytical results be incorporated into the risk assessment process for completion of the HHRA and SLERA.



Should you have any questions on the above, please do not hesitate to contact us.

Sincerely,

GHD

A handwritten signature in blue ink that reads "Julian Hayward". The signature is fluid and cursive, with "Julian" on top and "Hayward" below it.

Julian Hayward

JH/kf/4

Encl.

cc: (all by pdf)      Tamara McPeek, Ohio EPA  
                          Scott Glum, Ohio EPA  
                          Ken Brown, ITW  
                          Bryan Heath, NCR  
                          Wendell Barner, Barner Consulting  
                          Jim Campbell, EMI  
                          Andrew Dorn, ITW  
                          Brooke Harris, Jacobs

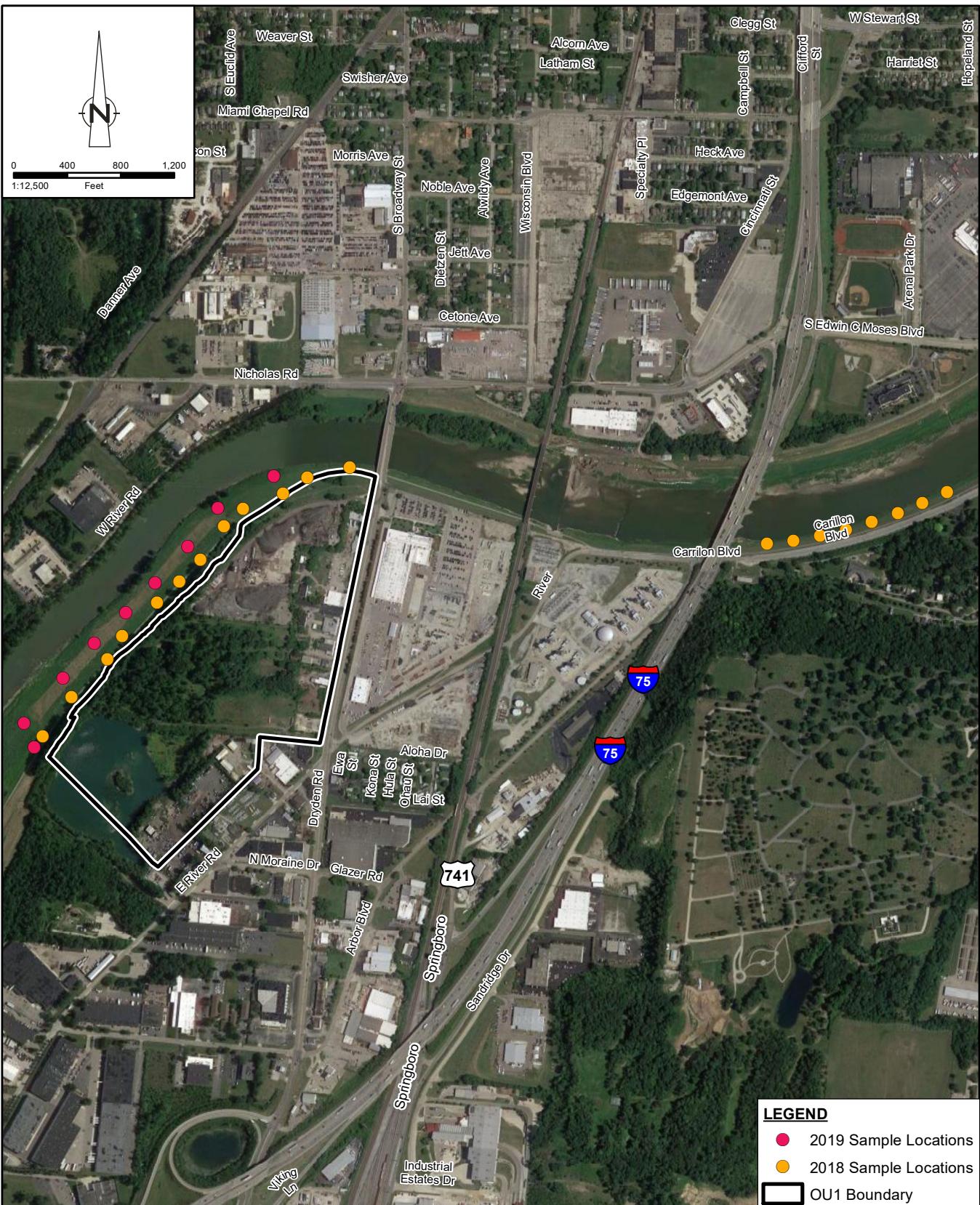


figure 1

## GREAT MIAMI RIVER FLOODPLAIN SAMPLE LOCATIONS SOUTH DAYTON DUMP & LANDFILL SITE Moraine, Ohio



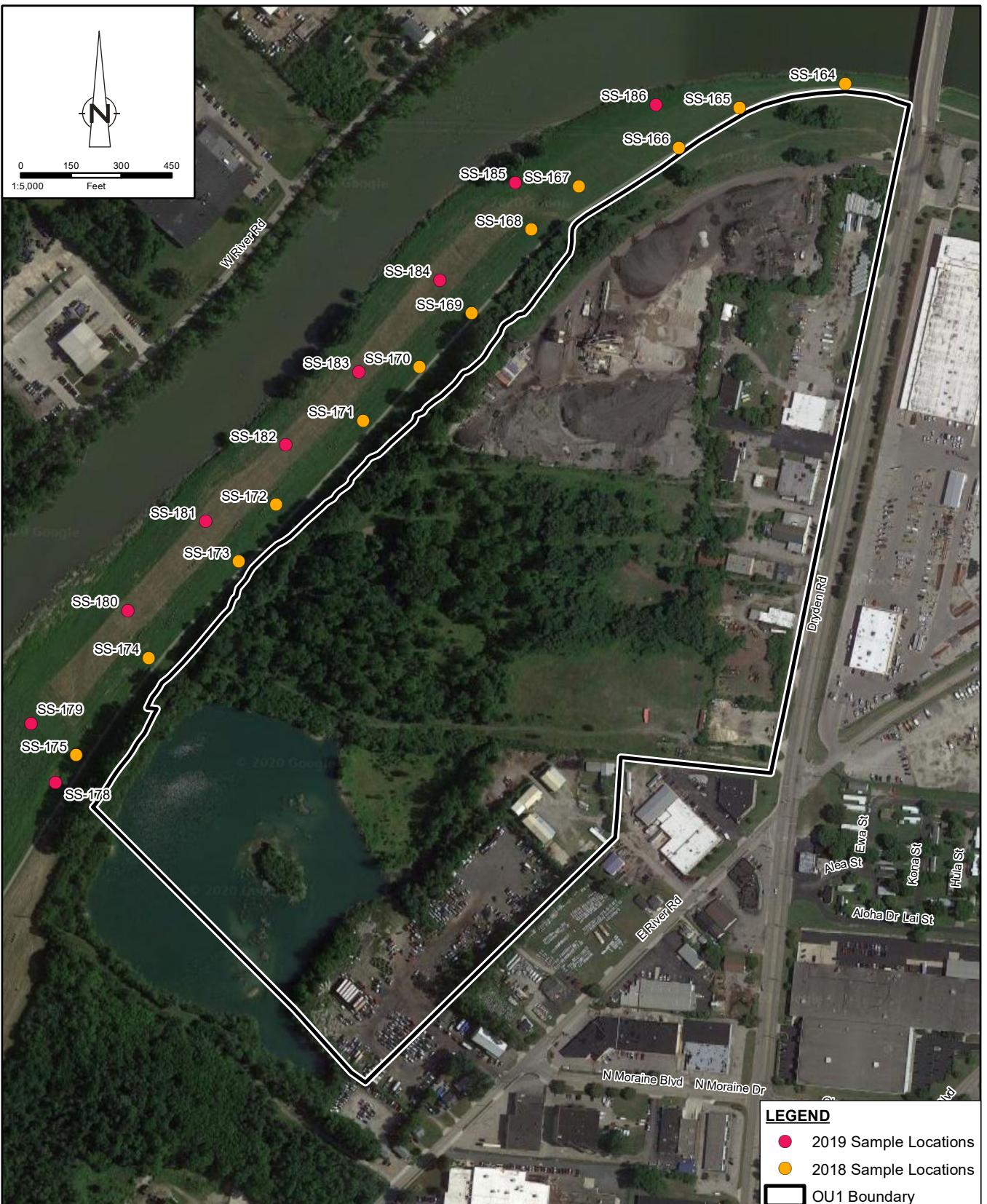
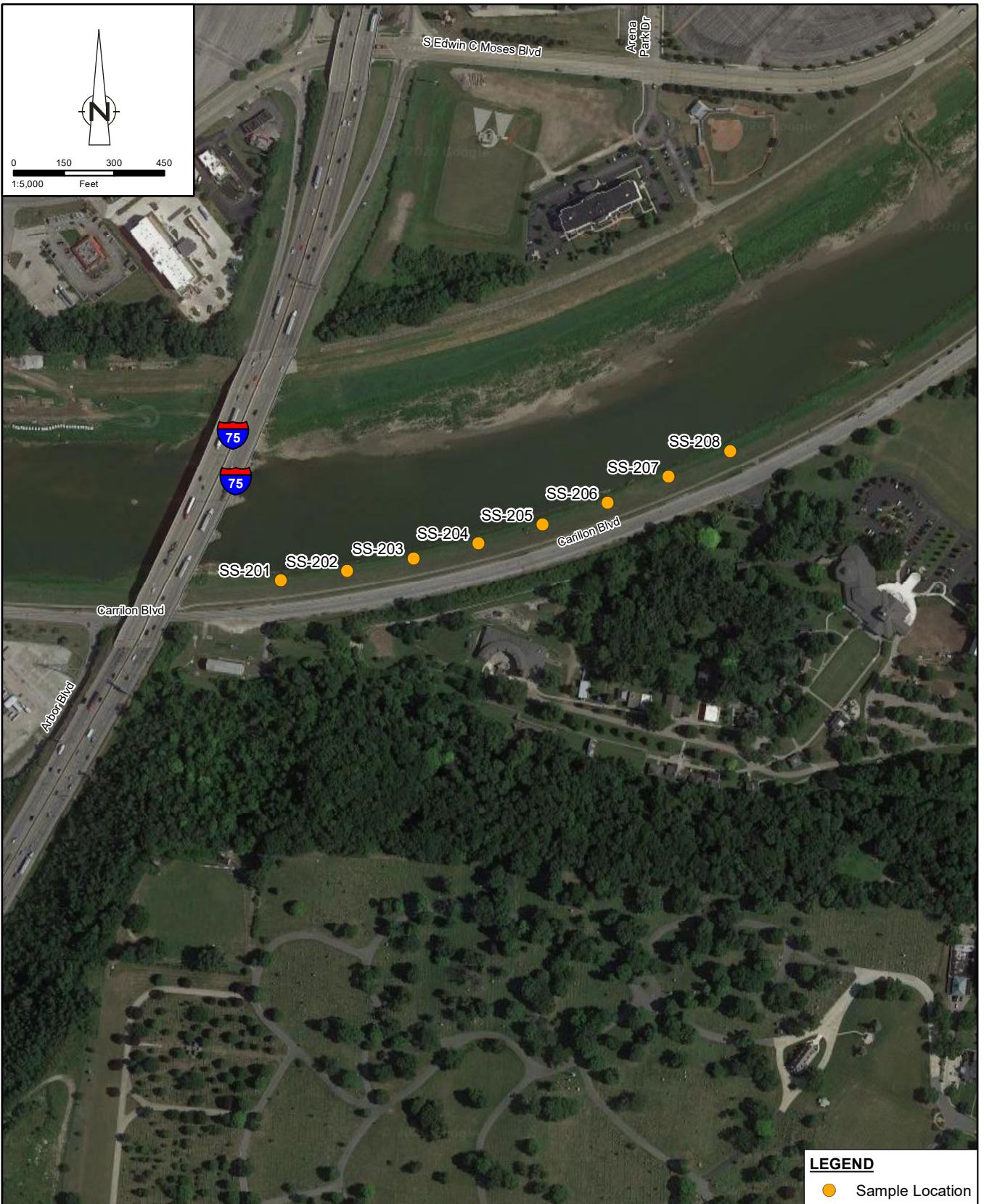


figure 2

## FLOODPLAIN SOIL SAMPLE LOCATIONS – ADJACENT TO OU1 SOUTH DAYTON DUMP & LANDFILL SITE Moraine, Ohio





Source: Image ©2019 Google, 07/10/2018  
 Coordinate System: NAD 1983 StatePlane Ohio North FIPS 3401 Feet

figure 3

### FLOODPLAIN SOIL SAMPLE LOCATIONS – UPSTREAM SOUTH DAYTON DUMP & LANDFILL SITE *Moraine, Ohio*



Table 1

**Sample Collection Summary**  
**GMR Floodplain Soil Sample Locations - November 2019**  
**South Dayton Dump Landfill Site**  
**Moraine, Ohio**

Floodplain Location ID	Date	Time	GHD Supervisor	Stratigraphy Depth (ft BGS) From To	Sample Description	Sampling Method	Recovery (inches)	PID/FID (ppm)	Sample Interval Depth (ft BGS) From To	Sample ID
SS-178	11/14/2019	9:45	Greg Lewis	0.0 0.5 0.5 1.0 1.0 1.7 1.7 2.0	ML/OL, fine sand, moist, brown ML/OL, fine sand, moist, brown MH/SM, medium sand, wet, brown SP, med-large sand, wet, brown	Hand Auger	6 18	0.1 0	0.0 0.5 0.5 2.0	SS-38443-111419-GL-001 SS-38443-111419-GL-002
SS-179	11/14/2019	10:07	Greg Lewis	0.0 0.5 0.5 1.7 1.7 2.0	Fine sand, dry, light brown Fine sand, dry, light brown MH/OL, fine sand, med plasticity, moist	Hand Auger	6 18	0 0	0.0 0.5 0.5 2.0	SS-38443-111419-GL-003 SS-38443-111419-GL-004
SS-180	11/14/2019	12:50	Greg Lewis	0.0 0.3 0.3 0.6 0.6 2.0	ML, fine sand, dry, brown ML, fine sand, trace clay, dry, brown ML, fine sand, trace clay, dry, brown	Hand Auger	6 18	0 0	0.0 0.5 0.5 2.0	SS-38443-111419-GL-019 SS-38443-111419-GL-020
SS-181	11/14/2019	10:33	Greg Lewis	0.0 0.3 0.3 0.5 0.5 1.5 1.5 2.0	MH/SM, medium plasticity, moist, brown Silt, fine sand, dry, light brown Silt, fine sand, dry, light brown ML, silt, dry, light brown	Hand Auger	6 18	0 0	0.0 0.5 0.5 2.0	SS-38443-111419-GL-005 SS-38443-111419-GL-006
SS-182	11/14/2019	10:57	Greg Lewis	0.0 0.3 0.3 0.5 0.5 1.5 1.5 2.0	ML, fine silty sands, ,moist, brown Silty fine sands, dry, light brown Silty fine sands, dry, light brown Fine silt, medium plasticity, dry, light brown	Hand Auger	6 18	0.00 0.5	0.0 0.5 0.5 2.0	SS-38443-111419-GL-007 SS-38443-111419-GL-008/-009
SS-183	11/14/2019	11:22	Greg Lewis	0.0 0.5 0.5 2.0	MH, fine sands, dry, brown MH, fine sands, dry, brown MH, soft, dry, light brown to brown	Hand Auger	6 18	0 0	0.0 0.5 0.0 2.0	SS-38443-111419-GL-010 SS-38443-111419-GL-011
SS-184	11/14/2019	11:43	Greg Lewis	0.0 0.5 0.5 0.8 0.8 1.0 1.0 1.5 1.5 2.0	MH, fine sand, dry, brown PT/MH, fine sand, dry, brown MH, trace fine gravel, fine sand, brown, dry Fine sand, trace shells, moist, light brown MH, medium plasticity, dry, brown	Hand Auger	6 18	0 0	0.0 0.5 0.5 2.0	SS-38443-111419-GL-012 SS-38443-111419-GL-013
SS-185	11/14/2019	12:04	Greg Lewis	0.0 0.5 0.5 2.0	MH/SM, fine, dry, brown MH, medium plasticity, dry, brown	Hand Auger	6 18	0 0.5	0.0 0.5 0.5 2.0	SS-38443-111419-GL-014 SS-38443-111419-GL-015
SS-186	11/14/2019	12:12	Greg Lewis	0.0 0.5 0.5 2.0	ML, cohesive, medium plasticity, dry, light brown ML, cohesive, medium plasticity, trace clay, dry, light brown	Hand Auger	6 18	0 0.1	0.0 0.5 0.5 2.0	SS-38443-111419-GL-016/-017 SS-38443-111419-GL-018

Table 2a

**Summary of Soil Analytical Results**  
**Floodplain Soil Samples Adjacent to OU1 - November 2019**  
**South Dayton Dump and Landfill Site**  
**Moraine, Ohio**

Sample Location:	SS-178	SS-178	SS-179	SS-179	SS-180	SS-180	SS-181	SS-181	SS-182	SS-182	SS-182
Sample ID:	SS-38443-111419-GL-001	SS-38443-111419-GL-002	SS-38443-111419-GL-003	SS-38443-111419-GL-004	SS-38443-111419-GL-019	SS-38443-111419-GL-020	SS-38443-111419-GL-005	SS-38443-111419-GL-006	SS-38443-111419-GL-007	SS-38443-111419-GL-008	SS-38443-111419-GL-009
Sample Date:	11/14/2019	11/14/2019	11/14/2019	11/14/2019	11/14/2019	11/14/2019	11/14/2019	11/14/2019	11/14/2019	11/14/2019	11/14/2019
Sample Depth:	0-0.5 ft BGS	0.5-2 ft BGS	0.5-2 ft BGS								
<b>Parameters</b>	<b>Units</b>	<b>CAS No.</b>	<b># of detects</b>								
<b>Semi-Volatiles</b>											
2,2'-Oxybis(1-chloropropane) (bis(2-Chloroisopropyl) ether)	µg/kg	108-60-1	0	12 U	14 U	11 U	25 U	46 U	24 U	23 U	12 U
2,4,5-Trichlorophenol	µg/kg	95-95-4	0	84 U	74 U	76 U	180 U	320 U	170 U	160 U	81 U
2,4,6-Trichlorophenol	µg/kg	88-06-2	0	78 U	87 U	69 U	71 U	160 U	290 U	150 U	75 U
2,4-Dichlorophenol	µg/kg	120-83-2	0	53 U	60 U	47 U	49 U	110 U	200 U	110 U	100 U
2,4-Dimethylphenol	µg/kg	105-67-9	0	49 U	55 U	43 U	44 U	100 U	180 U	96 U	93 U
2,4-Dinitrophenol	µg/kg	51-28-5	0	170 U	190 U	150 U	160 U	360 U	650 U	340 U	330 U
2,4-Dinitrotoluene	µg/kg	121-14-2	0	75 U	85 U	67 U	68 U	160 U	290 U	150 U	140 U
2,6-Dinitrotoluene	µg/kg	606-20-2	0	68 U	77 U	60 U	62 U	140 U	260 U	130 U	130 U
2-Chloronaphthalene	µg/kg	91-58-7	0	17 U	19 U	15 U	15 U	36 U	64 U	34 U	33 U
2-Chlorophenol	µg/kg	95-57-8	0	12 U	14 U	11 U	11 U	25 U	46 U	24 U	23 U
2-Methylnaphthalene	µg/kg	91-57-6	20	49	8.9 J	6.1 J	9.4 J	33 J	20 J	30 J	12 J
2-Methylphenol	µg/kg	95-48-7	0	38 U	42 U	33 U	34 U	79 U	140 U	74 U	72 U
2-Nitroaniline	µg/kg	88-74-4	0	49 U	55 U	43 U	44 U	100 U	180 U	96 U	93 U
2-Nitrophenol	µg/kg	88-75-5	0	16 U	18 U	14 U	14 U	33 U	60 U	31 U	30 U
3&4-Methylphenol	µg/kg	3/4-Cresol	0	35 U	40 U	31 U	32 U	74 U	130 U	69 U	67 U
3,3'-Dichlorobenzidine	µg/kg	91-94-1	0	52 U	59 U	46 U	47 U	110 U	200 U	100 U	100 U
3-Nitroaniline	µg/kg	99-09-2	0	60 U	67 U	53 U	54 U	120 U	230 U	120 U	110 U
4,6-Dinitro-2-methylphenol	µg/kg	534-52-1	0	97 U	110 U	86 U	88 U	200 U	370 U	190 U	190 U
4-Bromophenyl phenyl ether	µg/kg	101-55-3	0	17 U	19 U	15 U	15 U	36 U	64 U	34 U	33 U
4-Chloro-3-methylphenol	µg/kg	59-50-7	0	55 U	61 U	49 U	50 U	110 U	210 U	110 U	100 U
4-Chloroaniline	µg/kg	106-47-8	0	36 U	41 U	32 U	33 U	76 U	140 U	72 U	70 U
4-Chlorophenyl phenyl ether	µg/kg	7005-72-3	0	17 U	19 U	15 U	15 U	36 U	64 U	34 U	33 U
4-Nitroaniline	µg/kg	100-01-6	0	73 U	82 U	65 U	66 U	150 U	280 U	140 U	140 U
4-Nitrophenol	µg/kg	100-02-7	0	110 U	130 U	100 U	100 U	240 U	430 U	230 U	220 U
Acenaphthene	µg/kg	83-32-9	19	25	3.9 U	19	26	44	34 J	53	48
Acenaphthylene	µg/kg	208-96-8	19	42	7.7 J	7.5 J	11 J	19 J	18 U	17 J	14 J
Acetophenone	µg/kg	98-86-2	0	13 U	15 U	12 U	12 U	28 U	51 U	26 U	13 U
Anthracene	µg/kg	120-12-7	20	77	22	100	97	150	120	140	53
Atrazine	µg/kg	1912-24-9	0	44 U	49 U	39 U	40 U	92 U	170 U	86 U	84 U
Benzaldehyde	µg/kg	100-52-7	2	28 U	31 U	25 U	25 U	59 U	110 U	55 U	54 U
Benzo(a)anthracene	µg/kg	56-55-3	20	360	89	500	560	890	630	790	320
Benzo(a)pyrene	µg/kg	50-32-8	20	380	73	500	560	960	660	820	390
Benzo(b)fluoranthene	µg/kg	205-99-2	20	480	90	940 J	800	1700	1100	1400	1500
Benzo(g,h,i)perylene	µg/kg	191-24-2	20	200	39	120 J	240	210	160	210	140
Benzo(k)fluoranthene	µg/kg	207-08-9	20	200	40	350	320	670	450	530	250
Biphenyl (1,1-Biphenyl)	µg/kg	92-52-4	0	21 U	23 U	18 U	19 U	43 U	78 U	41 U	40 U
bis(2-Chloroethoxy)methane	µg/kg	111-91-1	0	15 U	16 U	13 U	13 U	31 U	55 U	29 U	28 U
bis(2-Chloroethyl)ether	µg/kg	111-44-4	0	15 U	16 U	13 U	13 U	31 U	55 U	29 U	28 U
bis(2-Ethylhexyl)phthalate (DEHP)	µg/kg	117-81-7	5	62 U	70 U	55 U	56 U	130 U	4500	120 U	120 U
Butyl benzylphthalate (BBP)	µg/kg	85-68-7	1	27 U	30 U	24 U	24 U	56 U	100 U	53 U	51 U
Caprolactam	µg/kg	105-60-2	0	91 U	100 U	81 U	83 U	190 U	340 U	180 U	170 U
Carbazole	µg/kg	86-74-8	19	41 J	26 U	68	91	130	98 J	110 J	39 J
Chrysene	µg/kg	218-01-9	20	410	86	580	650	1100	800	930	870
Dibenz(a,h)anthracene	µg/kg	53-70-3	20	62	13 J	36 J	68	59	52 J	74	65
Dibenzofuran	µg/kg	132-64-9	11	30 J	18 U	14 U	21 J	35 J	60 U	38 J	30 J
Diethyl phthalate	µg/kg	84-66-2	0	38 U	42 U	33 U	34 U	79 U	140 U	74 U	72 U
Dimethyl phthalate	µg/kg	131-11-3	2	17 U	19 U	15 U	15 U	36 U	64 U	34 U	33 U
Di-n-butylphthalate (DBP)	µg/kg	84-74-2	0	27 U	30 U	24 U	24 U	56 U	100 U	53 U	51 U
Di-n-octyl phthalate (DnOP)	µg/kg	117-84-0	0	34 U	38 U	30 U	31 U	71 U	130 U	67 U	65 U
Fluoranthene	µg/kg	206-44-0	20	730	130	1100 J	1300	2100	1600	1700	1900
Fluorene	µg/kg	86-73-7	20	30	5.7 J	29	33	55	49 J	65	60
Hexachlorobenzene	µg/kg	118-74-1	0	3.5 U	3.9 U	3.1 U	3.1 U	7.3 U	13 U	6.8 U	6.6 U
Hexachlorobutadiene	µg/kg	87-68-3	0	15 U	16 U	13 U	13 U	31 U	55 U	29 U	28 U
Hexachlorocyclopentadiene	µg/kg	77-47-4	0	75 U	85 U	R	68 U</td				

Table 2a

**Summary of Soil Analytical Results**  
**Floodplain Soil Samples Adjacent to OU1 - November 2019**  
**South Dayton Dump and Landfill Site**  
**Moraine, Ohio**

Sample Location:	SS-178	SS-178	SS-179	SS-179	SS-180	SS-180	SS-181	SS-181	SS-182	SS-182	SS-182
Sample ID:	SS-38443-111419-GL-001	SS-38443-111419-GL-002	SS-38443-111419-GL-003	SS-38443-111419-GL-004	SS-38443-111419-GL-019	SS-38443-111419-GL-020	SS-38443-111419-GL-005	SS-38443-111419-GL-006	SS-38443-111419-GL-007	SS-38443-111419-GL-008	SS-38443-111419-GL-009
Sample Date:	11/14/2019	11/14/2019	11/14/2019	11/14/2019	11/14/2019	11/14/2019	11/14/2019	11/14/2019	11/14/2019	11/14/2019	11/14/2019
Sample Depth:	0-0.5 ft BGS	0.5-2 ft BGS	0.5-2 ft BGS								
Parameters	Units	CAS No.	# of detects								
<b>Metals cont'd</b>											
Chromium III (trivalent)	mg/kg	16065-83-1T	20	16	4.9	6.3	7.6	10	8.6	9.5	9.0
Chromium VI (hexavalent)	mg/kg	18540-29-9T	2	0.63 U	0.71 U	0.57 U	0.58 U	3.3 U	3.0 U	3.1 U	0.60 U
Cobalt	mg/kg	7440-48-4T	20	3.8	1.6	2.2	2.8	4.1	3.2	4.1	3.3
Copper	mg/kg	7440-50-8T	20	34	6.3	9.2	8.4	15	11	14	11
Iron	mg/kg	7439-89-6T	20	11000	5700	5900	8000	11000	8700	11000	9200
Lead	mg/kg	7439-92-1T	20	38	6.9	7.8	21	20	15	26	23
Magnesium	mg/kg	7439-95-4T	20	19000	31000	27000	26000	24000	27000	25000	26000
Manganese	mg/kg	7439-96-5T	20	160	150	210	250	380	290	370	350
Mercury	mg/kg	7439-97-6T	20	0.25 J	0.052 J	0.022 J	0.029 J	0.048 J	0.039 J	0.050 J	0.038 J
Nickel	mg/kg	7440-02-0T	20	13	4.9	6.2	8.4	13	9.0	12	9.4
Potassium	mg/kg	7440-09-7T	20	720	330	420	480	740	570	680	570
Selenium	mg/kg	7782-49-2T	19	0.42 J	0.14 U	0.15 J	0.26 J	0.41 J	0.29 J	0.35 J	0.30 J
Silver	mg/kg	7440-22-4T	20	0.34	0.054 J	0.025 J	0.058 J	0.074 J	0.13 J	0.076 J	0.070 J
Sodium	mg/kg	7440-23-5T	0	77 U	100 U	98 U	95 U	100 U	100 U	140 U	110 U
Thallium	mg/kg	7440-28-0T	20	0.23	0.093 J	0.075 J	0.10 J	0.16 J	0.12 J	0.15 J	0.12 J
Vanadium	mg/kg	7440-62-2T	20	16	8.2	7.1	9.3	13	10	12	10
Zinc	mg/kg	7440-66-6T	20	74	20	26	38	59	46	55	48
<b>PCBs</b>											
Aroclor-1016 (PCB-1016)	µg/kg	12674-11-2	0	26 U	30 U	23 U	24 U	27 U	26 U	26 U	25 U
Aroclor-1221 (PCB-1221)	µg/kg	11104-28-2	0	28 U	32 U	26 U	27 U	29 U	28 U	28 U	27 U
Aroclor-1232 (PCB-1232)	µg/kg	11141-16-5	0	27 U	31 U	24 U	26 U	28 U	27 U	27 U	26 U
Aroclor-1242 (PCB-1242)	µg/kg	53469-21-9	3	22 U	25 U	20 U	21 U	23 U	22 U	22 U	21 U
Aroclor-1248 (PCB-1248)	µg/kg	12672-29-6	5	28 U	32 U	140	50 J	140	28 U	28 U	27 U
Aroclor-1254 (PCB-1254)	µg/kg	11097-69-1	13	27 U	31 U	24 U	26 U	28 U	44 J	87	51 J
Aroclor-1260 (PCB-1260)	µg/kg	11096-82-5	0	26 U	30 U	23 U	24 U	27 U	26 U	26 U	25 U
<b>General Chemistry</b>											
Soot carbon	mg/kg	7440-44-0SOOT	20	21000	23000	33000	39000	20000	31000	29000	35000
Total organic carbon (TOC)	mg/kg	TOC	20	7900	4800	7200	7100	89000	10000	22000	11000

Notes:

J - Estimated concentration.  
R - Rejected.  
U - Not detected at the associated reporting limit.  
UU - Not detected; associated reporting limit is estimated.

Table 2a

**Summary of Soil Analytical Results**  
**Floodplain Soil Samples Adjacent to OU1 - November 2019**  
**South Dayton Dump and Landfill Site**  
**Moraine, Ohio**

Sample Location:	SS-183	SS-183	SS-184	SS-184	SS-185	SS-185	SS-186	SS-186	SS-186	SS-186
Sample ID:	SS-38443-111419-GL-010	SS-38443-111419-GL-011	SS-38443-111419-GL-012	SS-38443-111419-GL-013	SS-38443-111419-GL-014	SS-38443-111419-GL-015	SS-38443-111419-GL-016	SS-38443-111419-GL-017	SS-38443-111419-GL-018	
Sample Date:	11/14/2019	11/14/2019	11/14/2019	11/14/2019	11/14/2019	11/14/2019	11/14/2019	11/14/2019	11/14/2019	
Sample Depth:	0-0.5 ft BGS	0.5-2 ft BGS	0-0.5 ft BGS	0.5-2 ft BGS	0-0.5 ft BGS	0.5-2 ft BGS	0-0.5 ft BGS	0-0.5 ft BGS	0-0.5 ft BGS	Duplicate
Parameters	Units									
<b>Semi-Volatiles</b>										
2,2'-Oxybis(1-chloropropane) (bis(2-Chloroisopropyl) ether)	µg/kg	24 U	23 U	24 U	11 U	24 U	12 U	13 U	13 U	13 U
2,4,5-Trichlorophenol	µg/kg	170 U	160 U	170 U	78 U	170 U	84 U	89 U	89 U	87 U
2,4,6-Trichlorophenol	µg/kg	150 U	150 U	160 U	72 U	150 U	78 U	83 U	83 U	81 U
2,4-Dichlorophenol	µg/kg	110 U	100 U	110 U	50 U	110 U	53 U	57 U	57 U	55 U
2,4-Dimethylphenol	µg/kg	97 U	93 U	97 U	45 U	96 U	48 U	52 U	52 U	50 U
2,4-Dinitrophenol	µg/kg	340 U	330 U	350 U	R	340 U	170 U	180 U	180 U	180 U
2,4-Dinitrotoluene	µg/kg	150 U	140 U	150 U	70 U	150 U	75 U	80 U	80 U	78 U
2,6-Dinitrotoluene	µg/kg	140 U	130 U	140 U	63 U	130 U	68 U	72 U	72 U	70 U
2-Chloronaphthalene	µg/kg	34 U	33 U	34 U	16 U	34 U	17 U	18 U	18 U	18 U
2-Chlorophenol	µg/kg	24 U	23 U	24 U	11 U	24 U	12 U	13 U	13 U	13 U
2-Methylnaphthalene	µg/kg	27 J	17 J	10 J	11 J	17 J	15 J	12 J	17 J	14 J
2-Methylphenol	µg/kg	75 U	72 U	75 U	35 U	74 U	38 U	40 U	40 U	39 U
2-Nitroaniline	µg/kg	97 U	93 U	97 U	45 U	96 U	48 U	52 U	52 U	50 U
2-Nitrophenol	µg/kg	31 U	30 U	32 U	15 U	31 U	16 U	17 U	17 U	16 U
3&4-Methylphenol	µg/kg	70 U	68 U	70 U	33 U	69 U	35 U	37 U	37 U	36 U
3,3'-Dichlorobenzidine	µg/kg	100 U	100 U	100 U	48 U	100 U	52 U	56 U	55 U	54 U
3-Nitroaniline	µg/kg	120 U	110 U	120 U	55 U	120 U	59 U	63 U	63 U	62 U
4,6-Dinitro-2-methylphenol	µg/kg	190 U	190 U	190 U	R	190 U	97 U	100 U	100 U	100 U
4-Bromophenyl phenyl ether	µg/kg	34 U	33 U	34 U	16 U	34 U	17 U	18 U	18 U	18 U
4-Chloro-3-methylphenol	µg/kg	110 U	100 U	110 U	51 U	110 U	55 U	58 U	58 U	57 U
4-Chloroaniline	µg/kg	73 U	70 U	73 U	34 U	72 U	36 U	39 U	39 U	38 U
4-Chlorophenyl phenyl ether	µg/kg	34 U	33 U	34 U	16 U	34 U	17 U	18 U	18 U	18 U
4-Nitroaniline	µg/kg	150 U	140 U	150 U	68 U	140 U	73 U	78 U	77 U	76 U
4-Nitrophenol	µg/kg	230 U	220 U	230 U	110 U	230 U	110 U	120 U	120 U	120 U
Acenaphthene	µg/kg	48	110	33 J	12 J	45	40	16 J	22	21
Acenaphthylene	µg/kg	18 J	26 J	26 J	13 J	19 J	13 J	16 J	16 J	19
Acetophenone	µg/kg	27 U	26 U	27 U	12 U	26 U	13 U	14 U	14 U	14 U
Anthracene	µg/kg	130	250	120	43 J	120	100	56	65	62
Atrazine	µg/kg	87 U	84 U	88 U	41 U	86 U	44 U	47 U	46 U	45 U
Benzaldehyde	µg/kg	56 U	54 U	56 U	26 U	55 U	28 U	32 J	38 J	29 U
Benz(a)anthracene	µg/kg	730	870	630	390 J	680	610	470	530	480
Benz(a)pyrene	µg/kg	790	780	630	440 J	710	670	550	610	560
Benz(b)fluoranthene	µg/kg	1200	1200	1000	770 J	1100	1100	990	1100	840
Benz(g,h,i)perylene	µg/kg	240	500	540	120 J	620	190	180	210	250
Benz(k)fluoranthene	µg/kg	610	450	350	330 J	340	450	370	420	380
Biphenyl (1,1-Biphenyl)	µg/kg	41 U	40 U	41 U	19 U	41 U	21 U	22 U	22 U	21 U
bis(2-Chloroethoxy)methane	µg/kg	29 U	28 U	29 U	14 U	29 U	15 U	16 U	15 U	15 U
bis(2-Chloroethyl)ether	µg/kg	29 U	28 U	29 U	14 U	29 U	15 U	16 U	15 U	15 U
bis(2-Ethylhexyl)phthalate (DEHP)	µg/kg	120 U	390	190	57 U	130 J	62 U	66 U	66 U	71 J
Butyl benzylphthalate (BBP)	µg/kg	53 U	51 U	53 U	25 U	53 U	27 U	28 U	28 U	28 U
Caprolactam	µg/kg	180 U	170 U	180 U	84 U	180 U	91 U	97 U	97 U	94 U
Carbazole	µg/kg	110 J	140	110 J	39 J	99 J	66	46 J	61 J	58 J
Chrysene	µg/kg	920	950	770	470 J	820	810	630	710	650
Dibenz(a,h)anthracene	µg/kg	76	140	120	35 J	130	57	54	63	70
Dibenzofuran	µg/kg	39 J	41 J	32 U	15 U	31 U	25 J	17 U	17 U	16 J
Diethyl phthalate	µg/kg	75 U	72 U	75 U	35 U	74 U	38 U	40 U	40 U	39 U
Dimethyl phthalate	µg/kg	34 U	33 U	34 U	16 U	34 U	17 U	18 U	18 U	18 U
Di-n-butylphthalate (DBP)	µg/kg	53 U	51 U	53 U	25 U	53 U	27 U	28 U	28 U	28 U
Di-n-octyl phthalate (DnOP)	µg/kg	68 U	65 U	68 U	32 U	67 U	34 U	36 U	36 U	35 U
Fluoranthene	µg/kg	1800	1900	1600	830 J	1700	1300	1100	1100	1100
Fluorene	µg/kg	53	94	42	15 J	49	42	19	25	26
Hexachlorobenzene	µg/kg	6.9 U	6.6 U	6.9 U	3.2 U	6.8 U	3.5 U	3.7 U	3.7 U	3.6 U
Hexachlorobutadiene	µg/kg	29 U	28 U	29 U	14 U	29 U	15 U	16 U	15 U	15 U
Hexachlorocyclopentadiene	µg/kg	150 U	140 U	150 U	R	150 U	75 U	80 U	80 U	78 U
Hexachloroethane	µg/kg	22 U	21 U	22 U	10 U	22 U	11 U	12 U	12 U	11 U
Indeno(1,2,3-cd)pyrene	µg/kg	260	440	430	120 J	480	190	210	220	240
Iso phorone	µg/kg	29 U	28 U	29 U	14 U	29 U	15 U	16 U	15 U	15 U
Naphthalene	µg/kg	30 J	18 J	12 J	10 J	16 J	15 J	13 J	18 J	16 J
Nitrobenzene	µg/kg	31 U	30 U	32 U	15 U	31 U	16 U	17 U	17 U	16 U
N-Nitrosodi-n-propylamine	µg/kg	27 U	26 U	27 U	12 U	26 U	13 U	14 U	14 U	14 U
N-Nitrosodiphenylamine	µg/kg	29 U	28 U	29 U	14 U	29 U	15 U	16 U	15 U	15 U
Pentachlorophenol	µg/kg	140 U	140 U	140 U	R	140 U</td				

Table 2a

**Summary of Soil Analytical Results**  
**Floodplain Soil Samples Adjacent to OU1 - November 2019**  
**South Dayton Dump and Landfill Site**  
**Moraine, Ohio**

Sample Location:	SS-183	SS-183	SS-184	SS-184	SS-185	SS-185	SS-186	SS-186	SS-186
Sample ID:	SS-38443-111419-GL-010	SS-38443-111419-GL-011	SS-38443-111419-GL-012	SS-38443-111419-GL-013	SS-38443-111419-GL-014	SS-38443-111419-GL-015	SS-38443-111419-GL-016	SS-38443-111419-GL-017	SS-38443-111419-GL-018
Sample Date:	11/14/2019	11/14/2019	11/14/2019	11/14/2019	11/14/2019	11/14/2019	11/14/2019	11/14/2019	11/14/2019
Sample Depth:	0-0.5 ft BGS	0.5-2 ft BGS	0-0.5 ft BGS	0.5-2 ft BGS	0-0.5 ft BGS	0.5-2 ft BGS	0-0.5 ft BGS	0-0.5 ft BGS	0.5-2 ft BGS
<b>Parameters</b>									
<b>Units</b>									
<b>Metals cont'd</b>									
Chromium III (trivalent)	mg/kg	7.8	11	11	9.0	13	14	15	15
Chromium VI (hexavalent)	mg/kg	0.81 J	0.61 U	0.64 U	0.69 J	0.63 U	0.63 U	3.4 U	3.4 U
Cobalt	mg/kg	3.1	4.1	4.0	3.8	3.9	4.8	6.1	6.2
Copper	mg/kg	11	15	14	12	15	19	21	26
Iron	mg/kg	8500	11000	11000	10000	11000	13000	16000	17000
Lead	mg/kg	20	19	18	17	18	27	26	24
Magnesium	mg/kg	25000	26000	27000	27000	25000	24000	24000	23000
Manganese	mg/kg	300	340	360	310	360	410	510	550
Mercury	mg/kg	0.043 J	0.055 J	0.055 J	0.047 J	0.058 J	0.069 J	0.079 J	0.067 J
Nickel	mg/kg	9.3	12	12	10	13	14	17	18
Potassium	mg/kg	610	780	760	560	740	920	1200	1200
Selenium	mg/kg	0.30 J	0.42 J	0.40 J	0.33 J	0.40 J	0.52 J	0.64 J	0.68 J
Silver	mg/kg	0.090 J	0.12 J	0.10 J	0.12 J	0.099 J	0.16 J	0.18 J	0.18 J
Sodium	mg/kg	100 U	110 U	120 U	96 U	100 U	96 U	88 U	88 U
Thallium	mg/kg	0.12 J	0.16 J	0.15 J	0.16 J	0.15 J	0.20 J	0.25	0.24
Vanadium	mg/kg	10	13	14	11	13	15	18	19
Zinc	mg/kg	46	57	58	49	61	76	89	88
<b>PCBs</b>									
Aroclor-1016 (PCB-1016)	µg/kg	26 U	25 U	26 U	25 U	27 U	26 U	28 U	28 U
Aroclor-1221 (PCB-1221)	µg/kg	29 U	28 U	28 U	27 U	29 U	29 U	31 U	30 U
Aroclor-1232 (PCB-1232)	µg/kg	28 U	26 U	27 U	26 U	28 U	28 U	29 U	29 U
Aroclor-1242 (PCB-1242)	µg/kg	23 U	22 U	22 U	22 U	23 U	48 J	53 J	61 J
Aroclor-1248 (PCB-1248)	µg/kg	180	28 U	28 U	27 U	150	29 U	31 U	30 U
Aroclor-1254 (PCB-1254)	µg/kg	28 U	38 J	62	43 J	28 U	120	53 J	58 J
Aroclor-1260 (PCB-1260)	µg/kg	26 U	25 U	26 U	25 U	27 U	26 U	28 U	28 U
<b>General Chemistry</b>									
Soot carbon	mg/kg	25000	26000	25000	30000	30000	21000	16000	19000
Total organic carbon (TOC)	mg/kg	14000	18000	21000	13000	23000	18000	30000	31000
<b>Notes:</b>									
J - Estimated concentration.									
R - Rejected.									
U - Not detected at the associated reporting limit.									
UU - Not detected; associated reporting limit is estimated.									

Table 2b

**Summary of Detections  
Floodplain Soil Samples Adjacent to OU1 - November 2019  
South Dayton Dump and Landfill Site  
Moraine, Ohio**

Sample Location:	SS-178	SS-178	SS-179	SS-179	SS-180	SS-180	SS-181	SS-181	SS-182	SS-182	SS-182
Sample ID:	SS-38443-111419-GL-001	SS-38443-111419-GL-002	SS-38443-111419-GL-003	SS-38443-111419-GL-004	SS-38443-111419-GL-019	SS-38443-111419-GL-020	SS-38443-111419-GL-005	SS-38443-111419-GL-006	SS-38443-111419-GL-007	SS-38443-111419-GL-008	SS-38443-111419-GL-009
Sample Date:	11/14/2019	11/14/2019	11/14/2019	11/14/2019	11/14/2019	11/14/2019	11/14/2019	11/14/2019	11/14/2019	11/14/2019	11/14/2019
Sample Depth:	0-0.5 ft BGS	0.5-2 ft BGS	0.5-2 ft BGS								
Parameters	Units	CAS No.	# of detects								
<b>Semi-Volatiles</b>											
2-Methylnaphthalene	µg/kg	91-57-6	20	49	8.9 J	6.1 J	9.4 J	33 J	20 J	30 J	12 J
Acenaphthene	µg/kg	83-32-9	19	25	3.9 U	19	26	44	34 J	53	48
Acenaphthylene	µg/kg	208-96-8	19	42	7.7 J	7.5 J	11 J	19 J	18 U	17 J	14 J
Anthracene	µg/kg	120-12-7	20	77	22	100	97	150	120	140	140
Benzaldehyde	µg/kg	100-52-7	2	28 U	31 U	25 U	25 U	59 U	110 U	55 U	54 U
Benzo(a)anthracene	µg/kg	56-55-3	20	360	89	500	560	890	630	790	790
Benzo(a)pyrene	µg/kg	50-32-8	20	380	73	500	560	960	660	820	830
Benzo(b)fluoranthene	µg/kg	205-99-2	20	480	90	940 J	800	1700	1100	1400	1500
Benzo(g,h,i)perylene	µg/kg	191-24-2	20	200	39	120 J	240	210	160	210	210
Benzo(k)fluoranthene	µg/kg	207-08-9	20	200	40	350	320	670	450	530	530
bis(2-Ethylhexyl)phthalate (DEHP)	µg/kg	117-81-7	5	62 U	70 U	55 U	56 U	130 U	4500	120 U	120 U
Butyl benzylphthalate (BBP)	µg/kg	85-68-7	1	27 U	30 U	24 U	24 U	56 U	100 U	53 U	51 U
Carbazole	µg/kg	86-74-8	19	41 J	26 U	68	91	130	98 J	110 J	110 J
Chrysene	µg/kg	218-01-9	20	410	86	580	650	1100	800	930	870
Dibenz(a,h)anthracene	µg/kg	53-70-3	20	62	13 J	36 J	68	59	52 J	74	65
Dibenzofuran	µg/kg	132-64-9	11	30 J	18 U	14 U	21 J	35 J	60 U	38 J	30 J
Dimethyl phthalate	µg/kg	131-11-3	2	17 U	19 U	15 U	15 U	36 U	64 U	34 U	33 U
Fluoranthene	µg/kg	206-44-0	20	730	130	1100 J	1300	2100	1600	1700	1900
Fluorene	µg/kg	86-73-7	20	30	5.7 J	29	33	55	49 J	65	60
Indeno(1,2,3-cd)pyrene	µg/kg	193-39-5	20	190	37	130	240	230	160	230	230
Naphthalene	µg/kg	91-20-3	20	44	9.2 J	5.6 J	9.4 J	34 J	30 J	29 J	11 J
Phenanthrene	µg/kg	85-01-8	20	410	78	520 J	630	1000	780	900	950
Phenol	µg/kg	108-95-2	1	9.7 U	11 U	8.6 U	8.8 U	20 U	37 U	19 U	19 U
Pyrene	µg/kg	129-00-0	20	590	150	1100 J	1100	1800	1500	1600	1500
<b>Metals</b>											
Aluminum	mg/kg	7429-90-5T	20	5600	2300	2100	3100	5000	3500	4700	3700
Antimony	mg/kg	7440-36-0T	13	0.22 J	0.15 UJ	0.13 UJ	0.11 UJ	0.13 J	0.12 UJ	0.13 J	0.15 J
Arsenic	mg/kg	7440-38-2T	20	4.5	2.1	2.4	3.2	4.7	3.8	4.9	4.1
Barium	mg/kg	7440-39-3T	20	88	38	28	43	77	53	71	61
Beryllium	mg/kg	7440-41-7T	20	0.36	0.13 J	0.14 J	0.17 J	0.26	0.20	0.27	0.21
Cadmium	mg/kg	7440-43-9T	20	0.68	0.15 J	0.13 J	0.21	0.30	0.25	0.27	0.25
Calcium	mg/kg	7440-70-2T	20	57000	94000	86000	80000	86000	90000	81000	85000
Chromium	mg/kg	7440-47-3T	20	16	4.9	6.3	7.6	10	8.6	9.5	9.0
Chromium III (trivalent)	mg/kg	16065-83-1T	20	16	4.9	6.3	7.6	10	8.6	9.5	9.0
Chromium VI (hexavalent)	mg/kg	18540-29-9T	2	0.63 U	0.71 U	0.57 U	0.58 U	3.3 U	3.0 U	3.1 U	0.60 U
Cobalt	mg/kg	7440-48-4T	20	3.8	1.6	2.2	2.8	4.1	3.2	4.1	3.3
Copper	mg/kg	7440-50-8T	20	34	6.3	9.2	8.4	15	11	14	11
Iron	mg/kg	7439-89-6T	20	11000	5700	5900	8000	11000	8700	11000	9200
Lead	mg/kg	7439-92-1T	20	38	6.9	7.8	21	20	15	26	23
Magnesium	mg/kg	7439-95-4T	20	19000	31000	27000	26000	24000	27000	25000	26000
Manganese	mg/kg	7439-96-5T	20	160	150	210	250	380	290	370	350
Mercury	mg/kg	7439-97-6T	20	0.25 J	0.052 J	0.022 J	0.029 J	0.048 J	0.039 J	0.050 J	0.038 J
Nickel	mg/kg	7440-02-0T	20	13	4.9	6.2	8.4	13	9.0	12	9.4
Potassium	mg/kg	7440-09-7T	20	720	330	420	480	740	570	680	570
Selenium	mg/kg	7782-49-2T	19	0.42 J	0.14 U	0.15 J	0.26 J	0.41 J	0.29 J	0.35 J	0.30 J
Silver	mg/kg	7440-22-4T	20	0.34	0.054 J	0.025 J	0.058 J	0.074 J	0.13 J	0.076 J	0.070 J
Thallium	mg/kg	7440-28-0T	20	0.23	0.093 J	0.075 J	0.10 J	0.16 J	0.12 J	0.15 J	0.12 J
Vanadium	mg/kg	7440-62-2T	20	16	8.2	7.1	9.3	13	10	12	10
Zinc	mg/kg	7440-66-6T	20	74	20	26	38	59	46	55	48
<b>PCBs</b>											
Aroclor-1242 (PCB-1242)	µg/kg	53469-21-9	3	22 U	25 U	20 U	21 U	23 U	22 U	22 U	21 U
Aroclor-1248 (PCB-1248)	µg/kg	12672-29-6	5	28 U	32 U	140	50 J	140	28 U	28 U	27 U
Aroclor-1254 (PCB-1254)	µg/kg	11097-69-1	13	27 U	31 U	24 U	26 U	28 U	44 J	87	51 J
<b>General Chemistry</b>											
Soot carbon	mg/kg	7440-44-0SOOT	20	21000	23000	33000	39000	20000	31000	29000	35000
Total organic carbon (TOC)	mg/kg	TOC	20	7900	4800	7200	7100	89000	10000	22000	11000

## Notes:

J - Estimated concentration.

R - Rejected.

U - Not detected at the associated reporting limit.

UJ - Not detected; associated reporting limit is estimated.

Table 2b

**Summary of Detections**  
**Floodplain Soil Samples Adjacent to OU1 - November 2019**  
**South Dayton Dump and Landfill Site**  
**Moraine, Ohio**

Sample Location:	SS-183	SS-183	SS-184	SS-184	SS-185	SS-185	SS-186	SS-186	SS-186	
Sample ID:	SS-38443-111419-GL-010	SS-38443-111419-GL-011	SS-38443-111419-GL-012	SS-38443-111419-GL-013	SS-38443-111419-GL-014	SS-38443-111419-GL-015	SS-38443-111419-GL-016	SS-38443-111419-GL-017	SS-38443-111419-GL-018	
Sample Date:	11/14/2019	11/14/2019	11/14/2019	11/14/2019	11/14/2019	11/14/2019	11/14/2019	11/14/2019	11/14/2019	
Sample Depth:	0-0.5 ft BGS	0.5-2 ft BGS	0-0.5 ft BGS	0.5-2 ft BGS	0-0.5 ft BGS	0.5-2 ft BGS	0-0.5 ft BGS	0-0.5 ft BGS	0.5-2 ft BGS	
<b>Parameters</b>										
<b>Units</b>										
<b>Semi-Volatiles</b>										
2-Methylnaphthalene	µg/kg	27 J	17 J	10 J	11 J	17 J	15 J	12 J	17 J	14 J
Acenaphthene	µg/kg	48	110	33 J	12 J	45	40	16 J	22	21
Acenaphthylene	µg/kg	18 J	26 J	26 J	13 J	19 J	13 J	16 J	16 J	19
Anthracene	µg/kg	130	250	120	43 J	120	100	56	65	62
Benzaldehyde	µg/kg	56 U	54 U	56 U	26 U	55 U	28 U	32 J	38 J	29 U
Benzo(a)anthracene	µg/kg	730	870	630	390 J	680	610	470	530	480
Benzo(a)pyrene	µg/kg	790	780	630	440 J	710	670	550	610	560
Benzo(b)fluoranthene	µg/kg	1200	1200	1000	770 J	1100	1100	990	1100	840
Benzo(g,h,i)perylene	µg/kg	240	500	540	120 J	620	190	180	210	250
Benzo(k)fluoranthene	µg/kg	610	450	350	330 J	340	450	370	420	380
bis(2-Ethylhexyl)phthalate (DEHP)	µg/kg	120 U	390	190	57 U	130 J	62 U	66 U	71 J	71 J
Butyl benzylphthalate (BBP)	µg/kg	53 U	51 U	53 U	25 U	53 U	27 U	28 U	28 U	28 U
Carbazole	µg/kg	110 J	140	110 J	39 J	99 J	66	46 J	61 J	58 J
Chrysene	µg/kg	920	950	770	470 J	820	810	630	710	650
Dibenz(a,h)anthracene	µg/kg	76	140	120	35 J	130	57	54	63	70
Dibenzo-furan	µg/kg	39 J	41 J	32 U	15 U	31 U	25 J	17 U	17 U	16 J
Dimethyl phthalate	µg/kg	34 U	33 U	34 U	16 U	34 U	17 U	18 U	18 U	18 U
Fluoranthene	µg/kg	1800	1900	1600	830 J	1700	1300	1100	1100	1100
Fluorene	µg/kg	53	94	42	15 J	49	42	19	25	26
Indeno(1,2,3-cd)pyrene	µg/kg	260	440	430	120 J	480	190	210	220	240
Naphthalene	µg/kg	30 J	18 J	12 J	10 J	16 J	15 J	13 J	18 J	16 J
Phenanthrene	µg/kg	840	1100	770	290 J	780	680	400	480	410
Phenol	µg/kg	19 U	19 U	19 U	9.0 U	19 U	9.7 U	10 U	10 U	10 U
Pyrene	µg/kg	1300	1600	1300	740 J	1400	1300	1000	1000	920
<b>Metals</b>										
Aluminum	mg/kg	3500	4900	5000	4000	4700	6000	7900	8000	9700
Antimony	mg/kg	0.14 UJ	0.13 J	0.14 J	0.15 J	0.14 J	0.17 J	0.21 J	0.20 J	0.24 J
Arsenic	mg/kg	3.7	4.9	4.6	4.3	4.7	5.6	7.2	7.2	8.4
Barium	mg/kg	58	73	70	56	76	98	120	120	130
Beryllium	mg/kg	0.20 J	0.28	0.26	0.28	0.26	0.33	0.42	0.42	0.50
Cadmium	mg/kg	0.24	0.32	0.31	0.28	0.33	0.42	0.48	0.47	0.69
Calcium	mg/kg	85000	81000	89000	82000	80000	79000	72000	72000	67000
Chromium	mg/kg	8.6	11	11	9.7	13	14	15	15	20
Chromium III (trivalent)	mg/kg	7.8	11	11	9.0	13	14	15	15	20
Chromium VI (hexavalent)	mg/kg	0.81 J	0.61 U	0.64 U	0.69 J	0.63 U	0.63 U	3.4 U	3.4 U	0.66 U
Cobalt	mg/kg	3.1	4.1	4.0	3.8	3.9	4.8	6.1	6.2	7.2
Copper	mg/kg	11	15	14	12	15	19	21	21	26
Iron	mg/kg	8500	11000	11000	10000	11000	13000	16000	17000	19000
Lead	mg/kg	20	19	18	17	18	27	26	24	34
Magnesium	mg/kg	25000	26000	27000	27000	25000	24000	24000	23000	23000
Manganese	mg/kg	300	340	360	310	360	410	510	510	550
Mercury	mg/kg	0.043 J	0.055 J	0.055 J	0.047 J	0.058 J	0.069 J	0.079 J	0.067 J	0.097 J
Nickel	mg/kg	9.3	12	12	10	13	14	17	18	21
Potassium	mg/kg	610	780	760	560	740	920	1200	1200	1400
Selenium	mg/kg	0.30 J	0.42 J	0.40 J	0.33 J	0.40 J	0.52 J	0.64 J	0.68 J	0.71 J
Silver	mg/kg	0.090 J	0.12 J	0.10 J	0.12 J	0.099 J	0.16 J	0.18 J	0.18 J	0.38
Thallium	mg/kg	0.12 J	0.16 J	0.15 J	0.16 J	0.15 J	0.20 J	0.25	0.24	0.30
Vanadium	mg/kg	10	13	14	11	13	15	18	19	22
Zinc	mg/kg	46	57	58	49	61	76	89	88	100
<b>PCBs</b>										
Aroclor-1242 (PCB-1242)	µg/kg	23 U	22 U	22 U	22 U	23 U	48 J	53 J	61 J	23 U
Aroclor-1248 (PCB-1248)	µg/kg	180	28 U	28 U	27 U	150	29 U	31 U	30 U	29 U
Aroclor-1254 (PCB-1254)	µg/kg	28 U	38 J	62	43 J	28 U	120	53 J	58 J	130
<b>General Chemistry</b>										
Soot carbon	mg/kg	25000	26000	25000	30000	30000	21000	16000	19000	13000
Total organic carbon (TOC)	mg/kg	14000	18000	21000	13000	23000	18000	30000	31000	93000

Notes:

J - Estimated concentration.

R - Rejected.

U - Not detected at the associated reporting limit.

UJ - Not detected; associated reporting limit is estimated.

Table 3

**Summary of Detections - Comparison to RSLs**  
**Floodplain Soil Samples - Adjacent to OU1**  
**South Dayton Dump and Landfill Site**  
**Moraine, Ohio**

Sample Location:		SS-164 S-38443-080618-JC-122 8/6/2018 0.17-0.67 ft BGS	SS-164 S-38443-080618-JC-123 8/6/2018 0.67-2.17 ft BGS	SS-165 S-38443-080618-JC-124 8/6/2018 0.17-0.67 ft BGS	SS-165 S-38443-080618-JC-125 8/6/2018 0.17-0.67 ft BGS	SS-165 S-38443-080618-JC-126 8/6/2018 0.17-1.17 ft BGS	SS-166 S-38443-080718-JC-127 8/7/2018 0.17-0.67 ft BGS	SS-166 S-38443-080718-JC-128 8/7/2018 0.67-2.17 ft BGS	SS-166 S-38443-080718-JC-129 8/7/2018 0.17-0.67 ft BGS	SS-167 S-38443-080718-JC-130 8/7/2018 0.67-2.17 ft BGS	SS-167 S-38443-080718-JC-131 8/7/2018 0.17-0.67 ft BGS	SS-168 S-38443-080718-JC-132 8/7/2018 0.67-2.17 ft BGS
Sample ID:												
Sample Date:												
Sample Depth:												
<b>Parameters</b>	<b>Units</b>	<b>RSL Industrial (TR=1E-06, THQ=0.1)</b>	<b>RSL Residential (TR=1E-06, THQ=0.1)</b>									
	a	b										
<b>Volatiles</b>												
1,4-Dichlorobenzene	µg/kg	1	11000	2600	0.93 U	1.3 U	1.2 U	1.3 U	1.1 U	1.0 U	0.99 U	0.91 U
Acetone	µg/kg	6	6700000	6100000	92	31 U	29 U	32 U	31 U	27 U	24 U	45
Methylene chloride	µg/kg	1	320000	35000	13 U	18 U	17 U	18 U	15 U	14 U	13 U	12 U
Toluene	µg/kg	1	4700000	490000	0.82 U	1.1 U	1.3 J	1.2 U	1.1 U	0.99 U	0.89 U	0.86 U
<b>Semi-Volatiles</b>												
2-Methylnaphthalene	µg/kg	45	300000	24000	110	5.7 J	7.5 J	8.7	9.6	31	17	6.8 J
Acenaphthene	µg/kg	42	4500000	360000	61	1.1 U	5.4 J	6.0 J	35	28	0.93 U	8.5
Acenaphthylene	µg/kg	45	-	-	46	6.2 J	11	12	40	23	51	5.5 J
Anthracene	µg/kg	46	2300000	1800000	120	6.6 J	20	21	99	33	25 U	8.3
Benzaldehyde	µg/kg	3	820000	170000	25 U	32 U	28 U	25 U	28 U	49 J	28 U	25 U
Benzo(a)anthracene	µg/kg	46	21000	1100	570	39	100	110	270	410	200	130
Benzo(a)pyrene	µg/kg	46	2100	110	590 <sup>b</sup>	50	120 <sup>b</sup>	120 <sup>b</sup>	230 <sup>b</sup>	450 <sup>b</sup>	210 <sup>b</sup>	110
Benzo(b)fluoranthene	µg/kg	46	21000	1100	1000	70	190	200	370	820	310	160
Benzo(g,h,i)perylene	µg/kg	46	-	-	440	36	86	80	140	260	180	54
Benzo(k)fluoranthene	µg/kg	46	210000	11000	410	28	76	73	150	260	160	71
bis(2-Ethylhexyl)phthalate (DEHP)	µg/kg	23	160000	39000	130	89 J	61 U	56 U	63 U	110	63 U	68 J
Butyl benzylphthalate (BBP)	µg/kg	4	1200000	290000	24 U	31 U	26 U	24 U	27 U	28 U	27 U	24 U
Carbazole	µg/kg	37	-	-	120	26 U	23 U	21 U	84	64	23 U	20 U
Chrysene	µg/kg	46	2100000	110000	660	47	120	120	470	230	120	40
Dibenz(a,h)anthracene	µg/kg	36	2100	110	120 <sup>b</sup>	0.92 U	0.79 U	0.72 U	38	72	0.81 U	0.71 U
Dibenzofuran	µg/kg	25	100000	7300	68	18 U	16 U	14 U	30 J	31 J	16 U	14 U
Dimethyl phthalate	µg/kg	2	-	-	15 U	19 U	15 U	17 U	18 U	17 U	15 U	18 U
Di-n-butylphthalate (DBP)	µg/kg	13	8200000	630000	36 J	59 J	37 J	24 U	34 J	34 J	27 U	41 J
Fluoranthene	µg/kg	46	3000000	240000	1300	79	220	220	650	930	350	230
Fluorene	µg/kg	44	3000000	240000	48	0.74 U	6.4 J	4.7 J	42	33	7.2 J	8.7
Indeno(1,2,3-cd)pyrene	µg/kg	46	21000	1100	390	29	77	72	130	240	150	47
Naphthalene	µg/kg	44	17000	3800	67	5.0 J	5.5 J	7.0 J	7.2 J	27	15	10
Phenanthrene	µg/kg	46	-	-	830	34	87	79	500	450	110	120
Phenol	µg/kg	2	2500000	1900000	8.8 U	11 U	9.6 U	8.8 U	9.9 U	10 U	9.8 U	8.6 U
Pyrene	µg/kg	46	2300000	180000	1100	73	200	200	560	820	340	250
<b>Metals</b>												
Aluminum	mg/kg	46	110000	7700	6200	6000	4800	5200	5000	7500	8500 <sup>b</sup>	4900
Antimony	mg/kg	39	47	3.1	0.63 J	0.27 J	0.33 J	0.37 J	0.34 J	1.3 J	0.90 J	0.29 J
Arsenic	mg/kg	46	3	0.68	8.0 <sup>ab</sup>	5.4 <sup>ab</sup>	7.4 <sup>ab</sup>	7.7 <sup>ab</sup>	11 <sup>ab</sup>	9.8 <sup>ab</sup>	10 <sup>ab</sup>	8.9 <sup>ab</sup>
Barium	mg/kg	46	22000	1500	92	85	100	110	150	140	140	88
Beryllium	mg/kg	45	230	16	0.56	0.47	0.39	0.37	0.34	0.67	0.62	0.30
Cadmium	mg/kg	46	98	-	0.91	0.46	0.39	0.41	0.38	1.2	0.79	0.27
Calcium	mg/kg	46	-	-	74000	42000	85000	88000	100000	72000	78000	85000
Chromium	mg/kg	46	-	-	19	12	10	11	18	16	9.3	7.6
Chromium III (trivalent)	mg/kg	46	180000	12000	19	11	10	11	18	18	16	9.3
Chromium VI (hexavalent)	mg/kg	8	6.3	0.3	0.53 U	0.52 J <sup>b</sup>	0.58 U	0.53 U	0.59 U	1.5 U	0.30 U	0.26 U
Cobalt	mg/kg	46	35	2.3	5.4 <sup>b</sup>	4.6 <sup>b</sup>	4.1 <sup>b</sup>	4.4 <sup>b</sup>	4.4 <sup>b</sup>	5.8 <sup>b</sup>	6.6 <sup>b</sup>	3.9 <sup>b</sup>
Copper	mg/kg	46	4700	310	35	15	14	15	14	42	33	13
Iron	mg/kg	46	82000	5500	14000 <sup>b</sup>	12000 <sup>b</sup>	11000 <sup>b</sup>	12000 <sup>b</sup>	12000 <sup>b</sup>	14000 <sup>b</sup>	16000 <sup>b</sup>	11000 <sup>b</sup>
Lead	mg/kg	46	800	400	55	18	20	21	18	68	47	44
Magnesium	mg/kg	46	-	-	24000	18000	28000	27000	35000	24000	24000	23000
Manganese	mg/kg	46	2600	180	450 <sup>b</sup>	440 <sup>b</sup>	490 <sup>b</sup>	520 <sup>b</sup>	690 <sup>b</sup>	470 <sup>b</sup>	550 <sup>b</sup>	390 <sup>b</sup>
Mercury	mg/kg	45	4.6	1.1	0.079 J	0.028 U	0.036 J	0.040 J	0.035 J	0.13	0.10 J	0.054 J
Nickel	mg/kg	46	2200	150	17	12	10	11	17	18	10	9.1
Potassium	mg/kg	46	-	-	940	850	1000	1100	950	1200		

Table 3

**Summary of Detections - Comparison to RSLs**  
**Floodplain Soil Samples - Adjacent to OU1**  
**South Dayton Dump and Landfill Site**  
**Moraine, Ohio**

Sample Location:		SS-164 S-38443-080618-JC-122 8/6/2018 0.17-0.67 ft BGS	SS-164 S-38443-080618-JC-123 8/6/2018 0.67-2.17 ft BGS	SS-165 S-38443-080618-JC-124 8/6/2018 0.17-0.67 ft BGS	SS-165 S-38443-080618-JC-125 8/6/2018 0.17-0.67 ft BGS	SS-165 S-38443-080618-JC-126 8/6/2018 0.17-0.67 ft BGS	SS-166 S-38443-080718-JC-127 8/7/2018 0.67-1.17 ft BGS	SS-166 S-38443-080718-JC-128 8/7/2018 0.17-0.67 ft BGS	SS-166 S-38443-080718-JC-129 8/7/2018 0.67-2.17 ft BGS	SS-167 S-38443-080718-JC-130 8/7/2018 0.17-0.67 ft BGS	SS-167 S-38443-080718-JC-131 8/7/2018 0.67-2.17 ft BGS	SS-168 S-38443-080718-JC-132 8/7/2018 0.17-0.67 ft BGS	SS-168 S-38443-080718-JC-132 8/7/2018 0.67-2.17 ft BGS		
Sample ID:															
Sample Date:															
Sample Depth:															
Parameters	Units	Detects	RSL Industrial (TR=1E-06, THQ=0.1) <b>a</b>	RSL Residential (TR=1E-06, THQ=0.1) <b>b</b>											
<b>Pesticides</b>															
4,4'-DDE	µg/kg	2	9300	2000	8.6 U	2.1 U	1.7 U	1.8 U	1.9 U	R	1.7 U	1.6 U	2.0 U	2.4 NJ	
4,4'-DDT	µg/kg	1	8500	1900	6.5 U	1.5 U	1.3 U	1.4 U	1.4 U	R	1.3 U	1.2 U	1.5 U	1.4 U	
alpha-Chlordane	µg/kg	2	-	-	8.6 U	2.0 U	1.7 U	1.8 U	1.9 U	1.8 UJ	1.7 U	1.6 U	2.0 U	1.8 U	
Endosulfan sulfate	µg/kg	1	490000	38000	7.3 U	1.7 U	1.5 U	1.5 U	1.6 U	R	1.4 U	1.4 U	1.7 U	2.9 J	
Endrin aldehyde	µg/kg	2	-	-	8.9 J	1.8 U	1.5 U	1.6 U	1.7 U	R	1.5 U	1.4 U	2.0 NJ	1.6 U	
gamma-BHC (lindane)	µg/kg	1	2500	570	10 U	2.4 U	2.1 U	2.0 U	2.2 U	R	2.0 U	1.9 U	2.4 U	2.2 U	
gamma-Chlordane	µg/kg	1	-	-	7.0 U	1.7 U	1.4 U	1.4 U	1.5 U	R	1.4 U	1.3 U	1.6 U	1.5 U	
Heptachlor epoxide	µg/kg	1	330	70	8.2 U	2.0 U	1.7 U	1.6 U	1.8 U	1.7 UJ	1.6 U	1.5 U	1.9 U	2.8 NJ	
Toxaphene	µg/kg	1	2100	490	140 U	34 U	29 U	29 U	30 U	32 U	30 U	28 U	26 U	31 U	
<b>Herbicides</b>															
2,4,5-TP (Silvex)	µg/kg	1	660000	51000	16 U	20 U	17 U	16 U	18 U	17 U	17 U	15 U	15 U	18 U	19 U
<b>General Chemistry</b>															
Cyanide (total)	mg/kg	1	15	2.3	0.19 U	0.26 U	0.22 U	0.22 U	0.24 U	0.27 J	0.24 U	0.19 U	0.20 U	0.23 U	0.25 U
Soot carbon	mg/kg	20	-	-	-	-	-	-	-	-	-	-	-	-	
Total organic carbon (TOC)	mg/kg	20	-	-	-	-	-	-	-	-	-	-	-	-	

## Notes

J - Estimated concentration.

NJ - Tentatively identified compound, estimated concentration.

R - Rejected.

U - Not detected at the associated reporting limit.

UJ - Not detected; associated reporting limit is estimated.

Table 3

**Summary of Detections - Comparison to RSLs**  
**Floodplain Soil Samples - Adjacent to OU1**  
**South Dayton Dump and Landfill Site**  
**Moraine, Ohio**

Sample Location:	SS-169	SS-169	SS-170	SS-170	SS-171	SS-171	SS-172	SS-172	SS-173	SS-173	SS-174	SS-174	SS-174
Sample ID:	S-38443-080718-JC-134	S-38443-080718-JC-135	S-38443-080718-JC-136	S-38443-080718-JC-137	S-38443-080718-JC-138	S-38443-080718-JC-139	S-38443-080718-JC-141	S-38443-080718-JC-142	S-38443-080818-JC-143	S-38443-080818-JC-144	S-38443-080818-JC-145	S-38443-080818-JC-146	S-38443-080818-JC-147
Sample Date:	8/7/2018	8/7/2018	8/7/2018	8/7/2018	8/7/2018	8/7/2018	8/7/2018	8/7/2018	8/8/2018	8/8/2018	8/8/2018	8/8/2018	8/8/2018
Sample Depth:	0.17-0.67 ft BGS	0.67-2.17 ft BGS	0.67-2.17 ft BGS										
Parameters	Units												
<b>Volatiles</b>													
1,4-Dichlorobenzene	µg/kg	1.2 J	1.1 U	0.97 U	0.88 U	1.0 U	1.1 U	1.1 U	0.96 U	0.93 U	1.0 U	0.99 U	0.89 U
Acetone	µg/kg	29 U	26 U	23 U	21 U	25 U	26 U	25 U	23 U	22 J	24 U	21 U	38
Methylene chloride	µg/kg	17 U	15 U	13 U	12 U	14 U	15 U	15 U	21 J	13 U	14 U	12 U	13 U
Toluene	µg/kg	1.1 U	0.96 U	0.85 U	0.77 U	0.92 U	0.95 U	0.93 U	0.84 U	0.82 U	0.89 U	0.87 U	0.78 U
<b>Semi-Volatiles</b>													
2-Methylnaphthalene	µg/kg	18	35	26	62	29	42	13	24	33	34	15 J	16
Acenaphthene	µg/kg	26	60	31	120	45	120	16	21	150	22	31	36
Acenaphthylene	µg/kg	46	50	35	56	55	80	32	41	38	42	37	37
Anthracene	µg/kg	90	100	85	170	150	1500	60	69	270	150	91	110
Benzaldehyde	µg/kg	28 U	29 U	29 U	54 U	56 U	110 U	28 U	28 U	54 U	25 U	56 U	54 U
Benzo(a)anthracene	µg/kg	520	500	540	820	690	1900 <sup>b</sup>	380	390	960	510	590	780
Benzo(a)pyrene	µg/kg	59 <sup>b</sup>	570 <sup>b</sup>	610 <sup>b</sup>	850 <sup>b</sup>	750 <sup>b</sup>	1600 <sup>b</sup>	430 <sup>b</sup>	430 <sup>b</sup>	1000 <sup>b</sup>	580 <sup>b</sup>	820 <sup>b</sup>	750 <sup>b</sup>
Benzo(b)fluoranthene	µg/kg	1100	1000	1100	1400 <sup>b</sup>	1400 <sup>b</sup>	2700 <sup>b</sup>	870	860	1500 <sup>b</sup>	790	1200 <sup>b</sup>	1200 <sup>b</sup>
Benzo(g,h,i)perylene	µg/kg	340	300	300	810	380	630	240	210	490	300	560	440
Benzo(k)fluoranthene	µg/kg	410	400	410	560	570	1100	280	290	350	220	350	440
bis(2-Ethylhexyl)phthalate (DEHP)	µg/kg	80 J	150	79 J	150 J	130 U	230 U	100	120	120 J	160	150 J	140 J
Butyl benzylphthalate (BBP)	µg/kg	27 U	28 U	27 U	52 U	54 U	100 U	27 U	49 J	52 U	24 U	54 U	52 U
Carbazole	µg/kg	72	85	77	180	110 J	280	56 J	54 J	250	57	81 J	110 J
Chrysene	µg/kg	680	610	700	1000	900	1900	520	480	1100	540	840	1000
Dibenz(a,h)anthracene	µg/kg	88	0.83 U	86	190 <sup>b</sup>	110	190 <sup>b</sup>	0.80 U	0.80 U	110	76	110	89
Dibenzofuran	µg/kg	22 J	30 J	25 J	94 J	39 J	89 J	16 J	17 J	100 J	29 J	32 U	47 J
Dimethyl phthalate	µg/kg	17 U	18 U	17 U	33 U	34 U	64 U	17 U	17 U	33 U	15 U	34 U	33 U
Di-n-butylphthalate (DBP)	µg/kg	27 U	29 J	36 J	52 U	54 U	100 U	27 U	33 J	52 U	26 J	54 U	52 U
Fluoranthene	µg/kg	1300	1200	1300	2100	1800	4600	950	900	2800	1400	1600	2400
Fluorene	µg/kg	28	46	31	83	60	260	18	23	150	35	42	75
Indeno(1,2,3-cd)pyrene	µg/kg	330	290	300	690	360	640	230	210	470	290	510	390
Naphthalene	µg/kg	19	29	25	99	29	37	10	16	54	40	20	24
Phenanthrene	µg/kg	480	560	510	1400	800	2500	350	350	1900	630	610	1300
Phenol	µg/kg	9.8 U	10 U	10 U	19 U	20 U	37 U	15 J	9.7 U	19 U	8.8 U	20 U	19 U
Pyrene	µg/kg	1100	1000	1100	1800	1600	3900	830	790	1700	890	1200	1100
<b>Metals</b>													
Aluminum	mg/kg	8600 <sup>b</sup>	11000 <sup>b</sup>	7600	9000 <sup>b</sup>	7400	6900	7900 <sup>b</sup>	9700 <sup>b</sup>	8100 <sup>b</sup>	4300	7000	5000
Antimony	mg/kg	0.24 J	0.39 J	0.40 J	0.30 J	0.22 J	0.28 J	0.21 J	0.24 J	0.26 J	0.20 J	0.17 J	0.14 J
Arsenic	mg/kg	7.7 <sup>ab</sup>	10 <sup>ab</sup>	9.2 <sup>ab</sup>	8.9 <sup>b</sup>	7.3 <sup>ab</sup>	7.2 <sup>ab</sup>	6.8 <sup>ab</sup>	8.6 <sup>ab</sup>	7.2 <sup>ab</sup>	4.8 <sup>ab</sup>	6.2 <sup>ab</sup>	4.7 <sup>ab</sup>
Barium	mg/kg	120	160	110	130	110	97	110	130	110	61	110	74
Beryllium	mg/kg	0.46	0.64	0.45	0.55	0.44	0.39	0.44	0.53	0.73	0.30	0.45	0.31
Cadmium	mg/kg	0.74	2.5	0.61	1.9	0.54	0.78	0.49	0.84	0.93	0.82	0.49	0.42
Calcium	mg/kg	76000	68000	88000	69000	83000	90000	79000	68000	72000	96000	83000	90000
Chromium	mg/kg	21	54	19	43	16	22	17	23	24	19	15	13
Chromium III (trivalent)	mg/kg	21	53	19	43	16	21	17	23	24	18	15	13
Chromium VI (hexavalent)	mg/kg	0.59 U	0.76 J <sup>b</sup>	0.60 U	0.43 J <sup>b</sup>	0.59 U	0.42 J <sup>b</sup>	0.58 U	0.58 U	0.57 U	0.55 J <sup>b</sup>	0.59 U	0.56 U
Cobalt	mg/kg	6.6 <sup>b</sup>	8.5 <sup>b</sup>	6.2 <sup>b</sup>	7.3 <sup>b</sup>	6.3 <sup>b</sup>	5.8 <sup>b</sup>	6.1 <sup>b</sup>	7.5 <sup>b</sup>	5.9 <sup>b</sup>	3.5 J <sup>b</sup>	5.2 <sup>b</sup>	3.7 <sup>b</sup>
Copper	mg/kg	26	60	23	45	23	31	21	28	25	21 J	20	16
Iron	mg/kg	17000 <sup>b</sup>	22000 <sup>b</sup>	16000 <sup>b</sup>	18000 <sup>b</sup>	17000 <sup>b</sup>	16000 <sup>b</sup>	16000 <sup>b</sup>	19000 <sup>b</sup>	15000 <sup>b</sup>	9300 J <sup>b</sup>	14000 <sup>b</sup>	10000 <sup>b</sup>
Lead	mg/kg	36	92	34	92	29	44	27	46	46	52 J	25	22
Magnesium	mg/kg	24000	22000	25000	21000								

Table 3

**Summary of Detections - Comparison to RSLs**  
**Floodplain Soil Samples - Adjacent to OU1**  
**South Dayton Dump and Landfill Site**  
**Moraine, Ohio**

Sample Location:	SS-169	SS-169	SS-170	SS-170	SS-171	SS-171	SS-172	SS-172	SS-173	SS-173	SS-174	SS-174	SS-174
Sample ID:	S-38443-080718-JC-134	S-38443-080718-JC-135	S-38443-080718-JC-136	S-38443-080718-JC-137	S-38443-080718-JC-138	S-38443-080718-JC-139	S-38443-080718-JC-141	S-38443-080718-JC-142	S-38443-080818-JC-143	S-38443-080818-JC-144	S-38443-080818-JC-145	S-38443-080818-JC-146	S-38443-080818-JC-147
Sample Date:	8/7/2018	8/7/2018	8/7/2018	8/7/2018	8/7/2018	8/7/2018	8/7/2018	8/7/2018	8/8/2018	8/8/2018	8/8/2018	8/8/2018	8/8/2018
Sample Depth:	0.17-0.67 ft BGS	0.67-2.17 ft BGS	0.67-2.17 ft BGS										
Parameters	Units												
<b>Pesticides</b>													
4,4'-DDE	µg/kg	1.9 U	19 U	1.8 U	9.2 U	2.5 J	1.7 U	1.7 U	1.9 U	8.1 U	9.6 U	9.2 U	9.4 U
4,4'-DDT	µg/kg	1.4 U	14 U	1.4 U	6.9 U	1.4 U	1.3 U	1.4 U	1.7 J	6.1 U	7.2 U	6.9 U	7.0 U
alpha-Chlordane	µg/kg	1.9 U	19 U	1.8 U	9.1 U	1.9 U	1.7 U	1.7 U	1.9 U	2.5 J	11 J	9.5 U	9.3 U
Endosulfan sulfate	µg/kg	1.6 U	16 U	1.6 U	7.8 U	1.6 U	1.5 U	1.5 U	1.6 U	1.6 U	6.9 U	8.1 U	7.8 U
Endrin aldehyde	µg/kg	1.6 U	16 U	1.6 U	8.0 U	1.7 U	1.5 U	1.5 U	1.6 U	1.6 U	7.0 U	8.3 U	7.9 U
gamma-BHC (lindane)	µg/kg	2.2 U	29 J	2.2 U	11 U	2.3 U	2.1 U	2.1 U	2.2 U	2.2 U	9.6 U	11 U	11 U
gamma-Chlordane	µg/kg	1.5 U	15 U	1.5 U	7.5 U	1.6 U	1.4 U	1.4 U	1.5 U	1.5 NJ	6.6 U	7.8 U	7.5 U
Heptachlor epoxide	µg/kg	1.8 U	18 U	1.8 U	8.8 U	1.8 U	1.7 U	1.7 U	1.8 U	1.8 U	7.7 U	9.1 U	8.9 U
Toxaphene	µg/kg	31 U	310 U	30 U	150 U	32 U	29 U	51 J	31 U	31 U	130 U	160 U	160 U
<b>Herbicides</b>													
2,4,5-TP (Silvex)	µg/kg	18 U	73 J	17 U	17 U	18 U	16 U	17 U	17 U	16 U	15 U	17 U	17 U
<b>General Chemistry</b>													
Cyanide (total)	mg/kg	0.22 U	0.22 U	0.22 U	0.22 U	0.24 U	0.19 U	0.22 U	0.23 U	0.22 U	0.19 U	0.22 U	0.24 U
Soot carbon	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Total organic carbon (TOC)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-

## Notes

J - Estimated concentration.

NJ - Tentatively identified compound, estimated concentration.

R - Rejected.

U - Not detected at the associated reporting limit.

UU - Not detected; associated reporting limit is estimated.

Table 3

**Summary of Detections - Comparison to RSLs**  
**Floodplain Soil Samples - Adjacent to OU1**  
**South Dayton Dump and Landfill Site**  
**Moraine, Ohio**

Sample Location:	SS-175	SS-175	SS-178	SS-178	SS-179	SS-179	SS-180	SS-180	SS-181	SS-181	SS-181	SS-182	SS-182		
Sample ID:	S-38443-080818-JC-148	S-38443-080818-JC-149	SS-38443-111419-GL-001	SS-38443-111419-GL-002	SS-38443-111419-GL-003	SS-38443-111419-GL-004	SS-38443-111419-GL-019	SS-38443-111419-GL-020	SS-38443-111419-GL-005	SS-38443-111419-GL-006	SS-38443-111419-GL-007	SS-38443-111419-GL-008			
Sample Date:	8/8/2018	8/8/2018	11/14/2019	11/14/2019	11/14/2019	11/14/2019	11/14/2019	11/14/2019	11/14/2019	11/14/2019	11/14/2019	11/14/2019	11/14/2019	11/14/2019	
Sample Depth:	0.17-0.67 ft BGS	0.67-2.17 ft BGS	0-0.5 ft BGS	0.5-2 ft BGS	0-0.5 ft BGS	0.5-2 ft BGS	0-0.5 ft BGS	0.5-2 ft BGS	0-0.5 ft BGS	0-0.5 ft BGS	0.5-2 ft BGS	0-0.5 ft BGS	0.5-2 ft BGS	0.5-2 ft BGS	
<b>Parameters</b>		<b>Units</b>													
<b>Volatiles</b>															
1,4-Dichlorobenzene	µg/kg	1.1 U	0.94 U	-	-	-	-	-	-	-	-	-	-	-	
Acetone	µg/kg	25 U	22 U	-	-	-	-	-	-	-	-	-	-	-	
Methylene chloride	µg/kg	14 U	13 U	-	-	-	-	-	-	-	-	-	-	-	
Toluene	µg/kg	0.92 U	0.83 U	-	-	-	-	-	-	-	-	-	-	-	
<b>Semi-Volatiles</b>															
2-Methylnaphthalene	µg/kg	27 J	11	49	8.9 J	6.1 J	9.4 J	33 J	20 J	30 J	12 J	11 J	11 J	11 J	
Acenaphthene	µg/kg	45	4.5 J	25	3.9 U	19	26	44	34 J	53	48	21	23		
Acenaphthylene	µg/kg	32 J	11	42	7.7 J	7.5 J	11 J	19 J	18 U	17 J	14 J	11 J	14 J		
Anthracene	µg/kg	100	18	77	22	100	97	150	120	140	140	53	76		
Benzaldehyde	µg/kg	110 U	28 U	28 U	31 U	25 U	59 U	110 U	55 U	54 U	27 U	26 U			
Benzo(a)anthracene	µg/kg	520	100	360	89	500	560	890	630	790	320	490			
Benzo(a)pyrene	µg/kg	610 <sup>b</sup>	130 <sup>b</sup>	380 <sup>b</sup>	73	500 <sup>b</sup>	560 <sup>b</sup>	960 <sup>b</sup>	660 <sup>b</sup>	820 <sup>b</sup>	830 <sup>b</sup>	390 <sup>b</sup>	540 <sup>b</sup>		
Benzo(b)fluoranthene	µg/kg	980	190	480	90	940 J	800	1700 <sup>b</sup>	1100	1400 <sup>b</sup>	1500 <sup>b</sup>	710	930		
Benzo(g,h,i)perylene	µg/kg	380	110	200	39	120 J	240	210	160	210	210	140	160		
Benzo(k)fluoranthene	µg/kg	210	67	200	40	350	320	670	450	530	530	250	350		
bis(2-Ethylhexyl)phthalate (DEHP)	µg/kg	250 U	120	62 U	70 U	55 U	56 U	130 U	4500	120 U	120 U	60 U	57 U		
Butyl benzylphthalate (BBP)	µg/kg	110 J	27 U	27 U	30 U	24 U	24 U	56 U	100 U	53 U	51 U	26 U	40 J		
Carbazole	µg/kg	95 U	23 U	41 J	26 U	68	91	130	98 J	110 J	110 J	39 J	70		
Chrysene	µg/kg	630	140	410	86	580	650	1100	800	930	870	410	610		
Dibenz(a,h)anthracene	µg/kg	3.3 U	17	62	13 J	36 J	68	59	52 J	74	65	40	47		
Dibenzofuran	µg/kg	65 U	16 U	30 J	18 U	14 U	21 J	35 J	60 U	38 J	30 J	15 U	15 J		
Dimethyl phthalate	µg/kg	70 U	17 U	17 U	19 U	15 U	15 U	36 U	64 U	34 U	33 U	1600	22 J		
Di-n-butylphthalate (DBP)	µg/kg	110 U	27 U	27 U	30 U	24 U	24 U	56 U	100 U	53 U	51 U	26 U	25 U		
Fluoranthene	µg/kg	1300	200	730	130	1100 J	1300	2100	1600	1700	1900	760	1200		
Fluorene	µg/kg	42	5.3 J	30	5.7 J	29	33	55	49 J	65	60	22	26		
Indeno(1,2,3-cd)pyrene	µg/kg	370	90	190	37	130	240	230	160	230	230	140	170		
Naphthalene	µg/kg	31 J	37 U	44	9.2 J	5.6 J	9.4 J	34 J	30 J	29 J	11 J	13 J	11 J		
Phenanthrene	µg/kg	690	83	410	78	520 J	630	1000	780	900	950	330	500		
Phenol	µg/kg	40 U	9.7 U	9.7 U	11 U	8.6 U	8.8 U	20 U	37 U	19 U	19 U	36 J	9.0 U		
Pyrene	µg/kg	940	190	590	150	1100 J	1800	1500	1600	1600	1600	750	960		
<b>Metals</b>															
Aluminum	mg/kg	7300	4300	5600	2300	2100	3100	5000	3500	4700	3700	3600	4400		
Antimony	mg/kg	0.18 J	0.17 J	0.22 J	0.15 UJ	0.13 UJ	0.11 UJ	0.13 J	0.12 UJ	0.13 J	0.15 J	0.12 UJ	0.13 J		
Arsenic	µg/kg	6.1 <sup>ab</sup>	5.1 <sup>ab</sup>	4.5 <sup>ab</sup>	2.1 <sup>b</sup>	2.4 <sup>b</sup>	3.2 <sup>ab</sup>	4.7 <sup>ab</sup>	3.8 <sup>ab</sup>	4.9 <sup>ab</sup>	4.1 <sup>ab</sup>	3.7 <sup>ab</sup>	4.4 <sup>ab</sup>		
Barium	µg/kg	100	89	88	38	28	43	77	53	71	61	45	60		
Beryllium	µg/kg	0.48	0.31	0.36	0.13 J	0.14 J	0.17 J	0.26	0.20	0.27	0.21	0.20	0.24		
Cadmium	µg/kg	0.89	0.56	0.68	0.15 J	0.13 J	0.21	0.30	0.25	0.27	0.25	0.20	0.28		
Calcium	mg/kg	73000	100000	57000	94000	86000	80000	86000	90000	81000	85000	85000	80000		
Chromium	µg/kg	24	12	16	4.9	6.3	7.6	10	8.6	9.5	9.0	7.5	9.1		
Chromium III (trivalent)	µg/kg	24	12	16	4.9	6.3	7.6	10	8.6	9.5	9.0	7.5	9.1		
Chromium VI (hexavalent)	µg/kg	0.60 U	0.29 U	0.63 U	0.71 U	0.57 U	0.58 U	3.3 U	3.0 U	3.1 U	0.60 U	0.61 U	0.59 U		
Cobalt	µg/kg	5.0 <sup>b</sup>	3.6 <sup>b</sup>	3.8 <sup>b</sup>	1.6	2.2	2.8 <sup>b</sup>	4.1 <sup>b</sup>	3.2 <sup>b</sup>	4.1 <sup>b</sup>	3.3 <sup>b</sup>	3.1 <sup>b</sup>	3.6 <sup>b</sup>		
Copper	µg/kg	27	16	34	6.3	9.2	8.4	15	11	14	11	8.9	12		
Iron	µg/kg	13000 <sup>b</sup>	9300 <sup>b</sup>	11000 <sup>b</sup>	5700 <sup>b</sup>	5900 <sup>b&lt;/sup</sup>									

Table 3

**Summary of Detections - Comparison to RSLs**  
**Floodplain Soil Samples - Adjacent to OU1**  
**South Dayton Dump and Landfill Site**  
**Moraine, Ohio**

Sample Location:	SS-175	SS-175	SS-178	SS-178	SS-179	SS-179	SS-180	SS-180	SS-181	SS-181	SS-181	SS-182	SS-182			
Sample ID:	S-38443-080818-JC-148	S-38443-080818-JC-149	SS-38443-111419-GL-001	SS-38443-111419-GL-002	SS-38443-111419-GL-003	SS-38443-111419-GL-004	SS-38443-111419-GL-019	SS-38443-111419-GL-020	SS-38443-111419-GL-005	SS-38443-111419-GL-006	SS-38443-111419-GL-007	SS-38443-111419-GL-008				
Sample Date:	8/8/2018	8/8/2018	11/14/2019	11/14/2019	11/14/2019	11/14/2019	11/14/2019	11/14/2019	11/14/2019	11/14/2019	11/14/2019	11/14/2019	11/14/2019			
Sample Depth:	0.17-0.67 ft BGS	0.67-2.17 ft BGS	0-0.5 ft BGS	0.5-2 ft BGS	0-0.5 ft BGS	0.5-2 ft BGS	0-0.5 ft BGS	0.5-2 ft BGS	0-0.5 ft BGS	0-0.5 ft BGS	0.5-2 ft BGS	0-0.5 ft BGS	0.5-2 ft BGS			
<b>Parameters</b>		<b>Units</b>														
<b>Pesticides</b>																
4,4'-DDE	µg/kg	9.5 U	9.2 U	-	-	-	-	-	-	-	-	-	-	-	-	
4,4'-DDT	µg/kg	7.1 U	6.9 U	-	-	-	-	-	-	-	-	-	-	-		
alpha-Chlordane	µg/kg	9.5 U	9.1 U	-	-	-	-	-	-	-	-	-	-	-		
Endosulfan sulfate	µg/kg	8.1 U	7.8 U	-	-	-	-	-	-	-	-	-	-	-		
Endrin aldehyde	µg/kg	8.3 U	8.0 U	-	-	-	-	-	-	-	-	-	-	-		
gamma-BHC (lindane)	µg/kg	11 U	11 U	-	-	-	-	-	-	-	-	-	-	-		
gamma-Chlordane	µg/kg	7.8 U	7.5 U	-	-	-	-	-	-	-	-	-	-	-		
Heptachlor epoxide	µg/kg	9.1 U	8.8 U	-	-	-	-	-	-	-	-	-	-	-		
Toxaphene	µg/kg	160 U	150 U	-	-	-	-	-	-	-	-	-	-	-		
<b>Herbicides</b>																
2,4,5-TP (Silvex)	µg/kg	17 U	17 U	-	-	-	-	-	-	-	-	-	-	-		
<b>General Chemistry</b>																
Cyanide (total)	mg/kg	0.25 U	0.23 U	-	-	-	-	-	-	-	-	-	-	-		
Soot carbon	mg/kg	-	-	21000	23000	33000	39000	20000	31000	29000	35000	28000	28000	28000		
Total organic carbon (TOC)	mg/kg	-	-	7900	4800	7200	7100	89000	10000	22000	11000	15000	15000	11000		

## Notes

- J - Estimated concentration.  
 NJ - Tentatively identified compound, estimated concentration.  
 R - Rejected.  
 U - Not detected at the associated reporting limit.  
 UJ - Not detected; associated reporting limit is estimated.

Table 3

**Summary of Detections - Comparison to RSLs**  
**Floodplain Soil Samples - Adjacent to OU1**  
**South Dayton Dump and Landfill Site**  
**Moraine, Ohio**

Sample Location:	SS-182	SS-183	SS-183	SS-184	SS-184	SS-185	SS-185	SS-186	SS-186	SS-186
Sample ID:	SS-38443-111419-GL-009	SS-38443-111419-GL-010	SS-38443-111419-GL-011	SS-38443-111419-GL-012	SS-38443-111419-GL-013	SS-38443-111419-GL-014	SS-38443-111419-GL-015	SS-38443-111419-GL-016	SS-38443-111419-GL-017	SS-38443-111419-GL-018
Sample Date:	11/14/2019	11/14/2019	11/14/2019	11/14/2019	11/14/2019	11/14/2019	11/14/2019	11/14/2019	11/14/2019	11/14/2019
Sample Depth:	0.5-2 ft BGS	0-0.5 ft BGS	0-0.5 ft BGS	0.5-2 ft BGS						
Duplicate										
<b>Parameters</b>		<b>Units</b>								
<b>Volatiles</b>										
1,4-Dichlorobenzene	µg/kg	-	-	-	-	-	-	-	-	-
Acetone	µg/kg	-	-	-	-	-	-	-	-	-
Methylene chloride	µg/kg	-	-	-	-	-	-	-	-	-
Toluene	µg/kg	-	-	-	-	-	-	-	-	-
<b>Semi-Volatiles</b>										
2-Methylnaphthalene	µg/kg	14 J	27 J	17 J	10 J	11 J	17 J	15 J	12 J	17 J
Acenaphthene	µg/kg	32	48	110	33 J	12 J	45	40	16 J	22
Acenaphthylene	µg/kg	11 J	18 J	26 J	26 J	13 J	19 J	13 J	16 J	19
Anthracene	µg/kg	100	130	250	120	43 J	120	100	56	65
Benzaldehyde	µg/kg	26 U	56 U	54 U	56 U	26 U	55 U	28 U	32 J	38 J
Benzo(a)anthracene	µg/kg	510	730	870	630	390 J	680	610	470	530
Benzo(a)pyrene	µg/kg	510 <sup>b</sup>	790 <sup>b</sup>	780 <sup>b</sup>	630 <sup>b</sup>	440 J <sup>b</sup>	710 <sup>b</sup>	670 <sup>b</sup>	550 <sup>b</sup>	610 <sup>b</sup>
Benzo(b)fluoranthene	µg/kg	820	1200 <sup>b</sup>	1200 <sup>b</sup>	1000	770 J	1100	1100	990	1100
Benzo(g,h,i)perylene	µg/kg	240	240	500	540	120 J	620	190	180	210
Benzo(k)fluoranthene	µg/kg	290	610	450	350	330 J	340	450	370	420
bis(2-Ethylhexyl)phthalate (DEHP)	µg/kg	57 U	120 U	390	190	57 U	130 J	62 U	66 U	71 J
Butyl benzylphthalate (BBP)	µg/kg	25 U	53 U	51 U	53 U	25 U	53 U	27 U	28 U	28 U
Carbazole	µg/kg	73	110 J	140	110 J	39 J	99 J	66	46 J	61 J
Chrysene	µg/kg	610	920	950	770	470 J	820	810	630	710
Dibenz(a,h)anthracene	µg/kg	74	76	140 <sup>b</sup>	120 <sup>b</sup>	35 J	130 <sup>b</sup>	57	54	63
Dibenzofuran	µg/kg	24 J	39 J	41 J	32 U	15 U	31 U	25 J	17 U	16 J
Dimethyl phthalate	µg/kg	16 U	34 U	34 U	16 U	16 U	34 U	17 U	18 U	18 U
Di-n-butylphthalate (DBP)	µg/kg	25 U	53 U	51 U	53 U	25 U	53 U	27 U	28 U	28 U
Fluoranthene	µg/kg	1300	1800	1900	1600	830 J	1700	1300	1100	1100
Fluorene	µg/kg	35	53	94	42	15 J	49	42	19	25
Indeno(1,2,3-cd)pyrene	µg/kg	240	260	440	430	120 J	480	190	210	220
Naphthalene	µg/kg	16 J	30 J	18 J	12 J	10 J	16 J	15 J	13 J	18 J
Phenanthrene	µg/kg	660	840	1100	770	290 J	780	680	400	410
Phenol	µg/kg	9.0 U	19 U	19 U	19 U	9.0 U	19 U	9.7 U	10 U	10 U
Pyrene	µg/kg	1000	1300	1600	1300	740 J	1400	1300	1000	920
<b>Metals</b>										
Aluminum	mg/kg	3900	3500	4900	5000	4000	4700	6000	7900 <sup>b</sup>	8000 <sup>b</sup>
Antimony	mg/kg	0.12 UJ	0.14 UJ	0.13 J	0.14 J	0.15 J	0.14 J	0.17 J	0.21 J	0.20 J
Arsenic	mg/kg	4.1 <sup>a,b</sup>	3.7 <sup>a,b</sup>	4.9 <sup>a,b</sup>	4.6 <sup>a,b</sup>	4.3 <sup>a,b</sup>	4.7 <sup>a,b</sup>	5.6 <sup>a,b</sup>	7.2 <sup>a,b</sup>	7.2 <sup>a,b</sup>
Barium	mg/kg	54	58	73	70	56	76	98	120	120
Beryllium	mg/kg	0.22	0.20 J	0.28	0.26	0.28	0.26	0.33	0.42	0.42
Cadmium	mg/kg	0.25	0.24	0.32	0.31	0.28	0.33	0.42	0.48	0.47
Calcium	mg/kg	86000	85000	81000	89000	82000	80000	79000	72000	72000
Chromium	mg/kg	8.7	8.6	11	11	9.7	13	14	15	20
Chromium III (trivalent)	mg/kg	8.7	7.8	11	11	9.0	13	14	15	20
Chromium VI (hexavalent)	mg/kg	0.59 U	0.81 J <sup>b</sup>	0.61 U	0.64 U	0.69 J <sup>b</sup>	0.63 U	0.63 U	3.4 U	3.4 U
Cobalt	mg/kg	3.4 <sup>b</sup>	3.1 <sup>b</sup>	4.1 <sup>b</sup>	4.0 <sup>b</sup>	3.8 <sup>b</sup>	3.9 <sup>b</sup>	4.8 <sup>b</sup>	6.1 <sup>b</sup>	6.2 <sup>b</sup>
Copper	mg/kg	11	11	15	14	12	15	19	21	21
Iron	mg/kg	9300 <sup>b</sup>	8500 <sup>b</sup>	11000 <sup>b</sup>	11000 <sup>b</sup>	10000 <sup>b</sup>	11000 <sup>b</sup>	13000 <sup>b</sup>	16000 <sup>b</sup>	17000 <sup>b</sup>
Lead	mg/kg	14	20	19	18	17	18	27	26	34
Magnesium	mg/kg	28000	25000	26000	27000	27000	25000	24000	24000	23000
Manganese	mg/kg	300 <sup>b</sup>	300 <sup>b</sup>	340 <sup>b</sup>	360 <sup>b</sup>	310 <sup>b</sup>	360 <sup>b</sup>	410 <sup>b</sup>	510 <sup>b</sup>	550 <sup>b</sup>
Mercury	mg/kg	0.042 J	0.043 J	0.055 J	0.055 J	0.047 J	0.058 J	0.069 J	0.079 J	0.067 J
Nickel	mg/kg	9.9	9.3	12	12	10	13	14	17	21
Potassium	mg/kg	630	610	780	760	560	740	920	1200	1400
Selenium	mg/kg	0.30 J	0.30 J	0.42 J	0.40 J	0.33 J	0.40 J	0.52 J	0.64 J	0.68 J
Silver	mg/kg	0.087 J	0.090 J	0.12 J	0.10 J	0.12 J	0.099 J	0.16 J	0.18 J	0.18 J
Sodium	mg/kg	94 U	100 U	110 U	120 U	96 U	100 U	96 U	88 U	87 U
Thallium	mg/kg	0.13 J <sup>b</sup>	0.12 J <sup>b</sup>	0.16 J <sup>b</sup>	0.15 J <sup>b</sup>	0.16 J <sup>b</sup>	0.15 J <sup>b</sup>	0.20 J <sup>b</sup>	0.25 <sup>b</sup>	0.24 <sup>b</sup>
Vanadium	mg/kg	11	10	13	14	11	13	15	18	19
Zinc	mg/kg	48	46	57	58	49	61	76	89	100
<b>PCBs</b>										
Aroclor-1242 (PCB-1242)	µg/kg	21 U	23 U	22 U	22 U	22 U	23 U	48 J	53 J	61 J
Aroclor-1248 (PCB-1248)	µg/kg	27 U	180	28 U	28 U	27 U	150	29 U	31 U	30 U
Aroclor-1254 (PCB-1254)	µg/kg	44 J	28 U	38 J	62	43 J	28 U	120	53 J	58 J
										130 <sup>b</sup>

Table 3

**Summary of Detections - Comparison to RSLs**  
**Floodplain Soil Samples - Adjacent to OU1**  
**South Dayton Dump and Landfill Site**  
**Moraine, Ohio**

Sample Location:	SS-182 SS-38443-111419-GL-009	SS-183 SS-38443-111419-GL-010	SS-183 SS-38443-111419-GL-011	SS-184 SS-38443-111419-GL-012	SS-184 SS-38443-111419-GL-013	SS-185 SS-38443-111419-GL-014	SS-185 SS-38443-111419-GL-015	SS-186 SS-38443-111419-GL-016	SS-186 SS-38443-111419-GL-017	SS-186 SS-38443-111419-GL-018
Sample ID:										
Sample Date:	11/14/2019	11/14/2019	11/14/2019	11/14/2019	11/14/2019	11/14/2019	11/14/2019	11/14/2019	11/14/2019	11/14/2019
Sample Depth:	0.5-2 ft BGS Duplicate	0-0.5 ft BGS	0.5-2 ft BGS	0-0.5 ft BGS	0.5-2 ft BGS	0-0.5 ft BGS	0.5-2 ft BGS	0-0.5 ft BGS	0-0.5 ft BGS	0.5-2 ft BGS
Parameters	Units									
<b>Pesticides</b>										
4,4'-DDE	µg/kg	-	-	-	-	-	-	-	-	-
4,4'-DDT	µg/kg	-	-	-	-	-	-	-	-	-
alpha-Chlordane	µg/kg	-	-	-	-	-	-	-	-	-
Endosulfan sulfate	µg/kg	-	-	-	-	-	-	-	-	-
Endrin aldehyde	µg/kg	-	-	-	-	-	-	-	-	-
gamma-BHC (lindane)	µg/kg	-	-	-	-	-	-	-	-	-
gamma-Chlordane	µg/kg	-	-	-	-	-	-	-	-	-
Heptachlor epoxide	µg/kg	-	-	-	-	-	-	-	-	-
Toxaphene	µg/kg	-	-	-	-	-	-	-	-	-
<b>Herbicides</b>										
2,4,5-TP (Silvex)	µg/kg	-	-	-	-	-	-	-	-	-
<b>General Chemistry</b>										
Cyanide (total)	mg/kg	-	-	-	-	-	-	-	-	-
Soot carbon	mg/kg	27000	25000	26000	25000	30000	30000	21000	16000	19000
Total organic carbon (TOC)	mg/kg	12000	14000	18000	21000	13000	23000	18000	30000	31000
Notes										
J - Estimated concentration.										
NJ - Tentatively identified compound, estimated concentration.										
R - Rejected.										
U - Not detected at the associated reporting limit.										
UJ - Not detected; associated reporting limit is estimated.										

Table 4

**Summary of Detections - Comparison to ESVs**  
**Floodplain Soil Samples - Adjacent to OU1**  
**South Dayton Dump and Landfill Site**  
**Moraine, Ohio**

Sample Location:  
 Sample ID:  
 Sample Date:  
 Sample Depth:

SS-164	SS-164	SS-165	SS-165	SS-165	SS-165	SS-166	SS-166	SS-166	SS-166	SS-167	SS-167	SS-167	SS-168
S-38443-080618-JC-122	S-38443-080618-JC-123	S-38443-080618-JC-124	S-38443-080618-JC-125	S-38443-080618-JC-126	S-38443-080718-JC-127	S-38443-080718-JC-128	S-38443-080718-JC-129	S-38443-080718-JC-130	S-38443-080718-JC-131				
8/6/2018	8/6/2018	8/6/2018	8/6/2018	8/6/2018	8/7/2018	8/7/2018	8/7/2018	8/7/2018	8/7/2018	8/7/2018	8/7/2018	8/7/2018	
0.17-0.67 ft BGS	0.67-2.17 ft BGS	0.17-0.67 ft BGS	0.17-0.67 ft BGS	0.17-0.67 ft BGS	0.67-1.17 ft BGS	0.17-0.67 ft BGS	0.67-2.17 ft BGS	0.17-0.67 ft BGS	0.17-0.67 ft BGS	0.17-0.67 ft BGS	0.17-0.67 ft BGS	0.17-0.67 ft BGS	

Parameters	Units	Detects	Soil Ecological Screening Levels	Sediment Freshwater Ecological Screening Value	Sediment Freshwater Ecological Screening Value (Wildlife Based)	a	b	c					
<b>Volatiles</b>													
1,4-Dichlorobenzene	µg/kg	1	880	30	-	0.93 U	1.3 U	1.2 U	1.3 U	1.3 U	1.1 U	1.0 U	0.99 U
Acetone	µg/kg	6	1200	65	-	92 <sup>b</sup>	31 U	29 U	32 U	31 U	27 U	24 U	45
Methylene chloride	µg/kg	1	210	18	-	13 U	18 U	17 U	18 U	18 U	15 U	14 U	13 U
Toluene	µg/kg	1	150	10	-	0.82 U	1.1 U	1.3 J	1.2 U	1.1 U	0.99 U	0.89 U	0.86 U
<b>Semi-Volatiles</b>													
2-Methylnaphthalene	µg/kg	45	-	20.2	-	110 <sup>b</sup>	5.7 J	7.5 J	8.7	9.6	31 <sup>b</sup>	17	6.8 J
Acenaphthene	µg/kg	42	-	6.7	-	61 <sup>b</sup>	1.1 U	5.4 J	6.0 J	35 <sup>b</sup>	28 <sup>b</sup>	0.93 U	8.5 <sup>b</sup>
Acenaphthylene	µg/kg	45	-	5.9	-	46 <sup>b</sup>	6.2 J <sup>b</sup>	11 <sup>b</sup>	11 <sup>b</sup>	12 <sup>b</sup>	40 <sup>b</sup>	23 <sup>b</sup>	11 <sup>b</sup>
Anthracene	µg/kg	46	-	57	-	120 <sup>b</sup>	6.6 J	20	21	99 <sup>b</sup>	97 <sup>b</sup>	33	51
Benzaldehyde	µg/kg	3	-	59	-	25 U	32 U	28 U	25 U	28 U	49 J	28 U	25 U
Benzo(a)anthracene	µg/kg	46	-	108	-	57 <sup>b</sup>	39	100	110 <sup>b</sup>	270 <sup>b</sup>	410 <sup>b</sup>	200 <sup>b</sup>	130 <sup>b</sup>
Benzo(a)pyrene	µg/kg	46	-	150	-	59 <sup>b</sup>	50	120	120	230 <sup>b</sup>	450 <sup>b</sup>	210 <sup>b</sup>	110
Benzo(b)fluoranthene	µg/kg	46	-	190	-	1000 <sup>b</sup>	70	190	200 <sup>b</sup>	370 <sup>b</sup>	820 <sup>b</sup>	310 <sup>b</sup>	160
Benzo(g,h,i)perylene	µg/kg	46	-	170	-	440 <sup>b</sup>	36	86	80	140	260 <sup>b</sup>	180 <sup>b</sup>	54
Benzo(k)fluoranthene	µg/kg	46	-	240	-	410 <sup>b</sup>	28	76	73	150	260 <sup>b</sup>	160	71
bis(2-Ethylhexyl)phthalate (DEHP)	µg/kg	23	20	180	-	130 <sup>a</sup>	89 J <sup>a</sup>	61 U	56 U	63 U	110 <sup>a</sup>	63 U	68 J <sup>a</sup>
Butyl benzylphthalate (BBP)	µg/kg	4	590	100	-	24 U	31 U	26 U	24 U	27 U	28 U	27 U	24 U
Carbazole	µg/kg	37	70	69	-	120 <sup>ab</sup>	26 U	23 U	21 U	84 <sup>ab</sup>	64	23 U	20 U
Chrysene	µg/kg	46	-	166	-	660 <sup>b</sup>	47	120	120	270 <sup>b</sup>	470 <sup>b</sup>	230 <sup>b</sup>	120
Dibenz(a,h)anthracene	µg/kg	36	-	33	-	120 <sup>b</sup>	0.92 U	0.79 U	0.72 U	38 <sup>b</sup>	72 <sup>b</sup>	0.81 U	0.71 U
Dibenzofuran	µg/kg	25	150	510	-	68	18 U	16 U	14 U	30 J	31 J	16 U	14 U
Dimethyl phthalate	µg/kg	2	350	678	-	15 U	19 U	17 U	15 U	17 U	18 U	17 U	15 U
Di-n-butylphthalate (DBP)	µg/kg	13	11	11	-	36 J <sup>ab</sup>	59 J <sup>ab</sup>	37 J <sup>ab</sup>	24 U	34 J <sup>ab</sup>	34 J <sup>ab</sup>	27 U	41 J <sup>ab</sup>
Fluoranthene	µg/kg	46	-	423	-	1300 <sup>b</sup>	79	220	220	650 <sup>b</sup>	930 <sup>b</sup>	350	230
Fluorene	µg/kg	44	-	77	-	48	0.74 U	6.4 J	4.7 J	42	33	7.2 J	8.7
Indeno(1,2,3-cd)pyrene	µg/kg	46	-	200	-	390 <sup>b</sup>	29	77	72	130	240 <sup>b</sup>	150	47
Naphthalene	µg/kg	44	-	176	-	67	5.0 J	5.5 J	7.0 J	7.2 J	27	15	10
Phenanthrene	µg/kg	46	-	204	-	830 <sup>b</sup>	34	87	79	500 <sup>b</sup>	450 <sup>b</sup>	110	120
Phenol	µg/kg	2	790	175	-	8.8 U	11 U	9.6 U	8.8 U	9.9 U	10 U	9.8 U	8.6 U
Pyrene	µg/kg	46	-	195	-	1100 <sup>b</sup>	73	200 <sup>b</sup>	200 <sup>b</sup>	560 <sup>b</sup>	820 <sup>b</sup>	340 <sup>b</sup>	250 <sup>b</sup>
<b>Metals</b>													
Aluminum	mg/kg	46	-	25000	-	6200	6000	4800	5200	5000	7500	8500	4900
Antimony	mg/kg	39	0.27	2	-	0.63 J <sup>a</sup>	0.27 J	0.33 J <sup>a</sup>	0.37 J <sup>a</sup>	0.34 J <sup>a</sup>	1.3 J <sup>a</sup>	0.90 J <sup>a</sup>	0.29 J <sup>a</sup>
Arsenic	mg/kg	46	18	9.8	-	8.0	5.4	7.4	7.7	11 <sup>b</sup>	9.8	10 <sup>b</sup>	8.9
Barium	mg/kg	46	330	20	-	92 <sup>b</sup>	85 <sup>b</sup>	100 <sup>b</sup>	110 <sup>b</sup>	150 <sup>b</sup>	140 <sup>b</sup>	140 <sup>b</sup>	88 <sup>b</sup>
Beryllium	mg/kg	45	2.5	-	-	0.56	0.47	0.39	0.37	0.34	0.67	0.62	0.30
Cadmium	mg/kg	46	0.36	1	-	0.91 <sup>a</sup>	0.46 <sup>a</sup>	0.39 <sup>a</sup>	0.41 <sup>a</sup>	0.38 <sup>a</sup>	1.2 <sup>ab</sup>	0.79 <sup>a</sup>	0.27
Calcium	mg/kg	46	-	-	-	74000	42000	85000	88000	100000	72000	78000	85000
Chromium	mg/kg	46	23	43.4	-	19	12	10	11	11	18	16	9.3
Chromium III (trivalent)	mg/kg	46	26	-	-	19	11	10	11	11	18	16	7.3
Chromium VI (hexavalent)	mg/kg	8	0.34	-	-	0.53 U	0.52 J <sup>a</sup>	0.58 U	0.53 U	0.59 U	1.5 U	0.30 U	0.26 U
Cobalt	mg/kg	46	13	50	-	5.4	4.6	4.1	4.4	4.4	5.8	6.6	3.9
Copper	mg/kg	46	28	31.6	-	35 <sup>ab</sup>	15	14	15	14	42 <sup>ab</sup>	33 <sup>ab</sup>	13
Iron	mg/kg	46	-	20000	-	14000	12000	11000	12000	12000	14000	16000	11000
Lead	mg/kg	46	11	35.8	-	55 <sup>ab</sup>	18 <sup>a</sup>	20 <sup>a</sup>	21 <sup>a</sup>	18 <sup>a</sup>	68 <sup>ab</sup>	47 <sup>ab</sup>	14 <sup>a</sup>
Magnesium	mg/kg	46	-	-	-	24000	18000	28000	27000	35000	24000	24000	23000
Manganese	mg/kg	46	220	460	-	450 <sup>b</sup>	440 <sup>a</sup>	490 <sup>ab</sup>	520 <sup>ab</sup>	690 <sup>ab</sup>	470 <sup>ab</sup>	550 <sup>ab</sup>	390 <sup>a</sup>
Mercury</td													

Table 4

**Summary of Detections - Comparison to ESVs**  
**Floodplain Soil Samples - Adjacent to OU1**  
**South Dayton Dump and Landfill Site**  
**Moraine, Ohio**

Sample Location:  
 Sample ID:  
 Sample Date:  
 Sample Depth:

SS-164	SS-164	SS-165	SS-165	SS-165	SS-165	SS-166	SS-166	SS-166	SS-167	SS-167	SS-168
S-38443-080618-JC-122	S-38443-080618-JC-123	S-38443-080618-JC-124	S-38443-080618-JC-125	S-38443-080618-JC-126	S-38443-080618-JC-127	S-38443-080718-JC-127	S-38443-080718-JC-128	S-38443-080718-JC-129	S-38443-080718-JC-129	S-38443-080718-JC-130	S-38443-080718-JC-131
8/6/2018	8/6/2018	8/6/2018	8/6/2018	8/6/2018	8/7/2018	8/7/2018	8/7/2018	8/7/2018	8/7/2018	8/7/2018	
0.17-0.67 ft BGS	0.67-2.17 ft BGS	0.17-0.67 ft BGS	0.17-0.67 ft BGS	Duplicate	0.67-1.17 ft BGS	0.17-0.67 ft BGS	0.67-2.17 ft BGS	0.17-0.67 ft BGS	0.67-2.17 ft BGS	0.17-0.67 ft BGS	

Parameters	Units	Detects	Soil Ecological Screening Levels	Sediment Freshwater Ecological Screening Value	Sediment Freshwater Ecological Screening Value (Wildlife Based)	a	b	c														
<b>PCBs</b>																						
Aroclor-1242 (PCB-1242)	µg/kg	3	-	-	-	22 U	26 U	22 U	23 U	24 U	23 U	21 U	20 U	25 U								
Aroclor-1248 (PCB-1248)	µg/kg	6	-	-	-	27 U	33 U	28 U	27 U	29 U	31 U	28 U	27 U	25 U	32 U							
Aroclor-1254 (PCB-1254)	µg/kg	33	-	-	-	280	57 J	26 U	26 U	28 U	95	39 J	26 U	24 U	56 J							
<b>Pesticides</b>																						
4,4'-DDE	µg/kg	2	-	1.4	-	8.6 U	2.1 U	1.7 U	1.7 U	1.8 U	1.9 U	R	1.7 U	1.6 U	2.0 U							
4,4'-DDT	µg/kg	1	-	1.0	-	6.5 U	1.5 U	1.3 U	1.3 U	1.4 U	1.4 U	R	1.3 U	1.2 U	1.5 U							
alpha-Chlordane	µg/kg	2	2.9	-	-	8.6 U	2.0 U	1.7 U	1.7 U	1.8 U	1.9 U	1.8 UJ	1.7 U	1.6 U	2.0 U							
Endosulfan sulfate	µg/kg	1	6.5	0.7	-	7.3 U	1.7 U	1.5 U	1.5 U	1.6 U	1.6 U	R	1.4 U	1.4 U	1.7 U							
Endrin aldehyde	µg/kg	2	-	-	-	8.9 J	1.8 U	1.5 U	1.5 U	1.6 U	1.7 U	R	1.5 U	1.4 U	2.0 NJ							
gamma-BHC (lindane)	µg/kg	1	3.1	2.4	10	10 U	2.4 U	2.1 U	2.0 U	2.2 U	2.3 U	R	2.0 U	1.9 U	2.4 U							
gamma-Chlordane	µg/kg	1	20	-	-	7.0 U	1.7 U	1.4 U	1.4 U	1.5 U	1.6 U	R	1.4 U	1.3 U	1.6 U							
Heptachlor epoxide	µg/kg	1	0.15	2.5	-	8.2 U	2.0 U	1.7 U	1.6 U	1.8 U	1.8 U	1.7 UJ	1.6 U	1.5 U	1.9 U							
Toxaphene	µg/kg	1	0.15	0.1	-	140 U	34 U	29 U	29 U	30 U	32 U	30 U	28 U	26 U	33 U							
<b>Herbicides</b>																						
2,4,5-TP (Silvex)	µg/kg	1	55	62	-	16 U	20 U	17 U	16 U	18 U	17 U	17 U	15 U	15 U	18 U							
<b>General Chemistry</b>																						
Cyanide (total)	mg/kg	1	0.1	-	-	0.19 U	0.26 U	0.22 U	0.22 U	0.24 U	0.24 U	0.27 J <sup>a</sup>	0.24 U	0.19 U	0.20 U	0.23 U						
Soot carbon	mg/kg	20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Total organic carbon (TOC)	mg/kg	20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

## Notes

J - Estimated concentration.  
 NJ - Tentatively identified compound, estimated concentration.  
 R - Rejected.  
 U - Not detected at the associated reporting limit.  
 UJ - Not detected; associated reporting limit is estimated.

Table 4

**Summary of Detections - Comparison to ESVs**  
**Floodplain Soil Samples - Adjacent to OU1**  
**South Dayton Dump and Landfill Site**  
**Moraine, Ohio**

Sample Location:	SS-168	SS-169	SS-169	SS-170	SS-170	SS-171	SS-171	SS-172	SS-172	SS-173	SS-173	SS-174	SS-174	SS-174
Sample ID:	S-38443-080718-JC-132	S-38443-080718-JC-134	S-38443-080718-JC-135	S-38443-080718-JC-136	S-38443-080718-JC-137	S-38443-080718-JC-138	S-38443-080718-JC-139	S-38443-080718-JC-141	S-38443-080718-JC-142	S-38443-080818-JC-143	S-38443-080818-JC-144	S-38443-080818-JC-145	S-38443-080818-JC-146	
Sample Date:	8/7/2018	8/7/2018	8/7/2018	8/7/2018	8/7/2018	8/7/2018	8/7/2018	8/7/2018	8/7/2018	8/8/2018	8/8/2018	8/8/2018	8/8/2018	
Sample Depth:	0.67-2.17 ft BGS	0.17-0.67 ft BGS	0.67-2.17 ft BGS											
Parameters	Units													
<b>Volatiles</b>														
1,4-Dichlorobenzene	µg/kg	1.1 U	1.2 J	1.1 U	0.97 U	0.88 U	1.0 U	1.1 U	1.1 U	0.96 U	0.93 U	1.0 U	0.99 U	0.89 U
Acetone	µg/kg	26 U	29 U	26 U	23 U	21 U	25 U	26 U	25 U	23 U	22 J	64	24 U	21 U
Methylene chloride	µg/kg	15 U	17 U	15 U	13 U	12 U	14 U	15 U	15 U	21 J <sup>b</sup>	13 U	14 U	14 U	12 U
Toluene	µg/kg	0.96 U	1.1 U	0.96 U	0.85 U	0.77 U	0.92 U	0.95 U	0.93 U	0.84 U	0.82 U	0.89 U	0.87 U	0.78 U
<b>Semi-Volatiles</b>														
2-Methylnaphthalene	µg/kg	32 <sup>b</sup>	18	35 <sup>b</sup>	26 <sup>b</sup>	62 <sup>b</sup>	29 <sup>b</sup>	42 <sup>b</sup>	13	24 <sup>b</sup>	33 <sup>b</sup>	34 <sup>b</sup>	15 J	16
Acenaphthene	µg/kg	12 <sup>b</sup>	26 <sup>b</sup>	60 <sup>b</sup>	31 <sup>b</sup>	120 <sup>b</sup>	45 <sup>b</sup>	120 <sup>b</sup>	16	21 <sup>b</sup>	150 <sup>b</sup>	22 <sup>b</sup>	31 <sup>b</sup>	36 <sup>b</sup>
Acenaphthylene	µg/kg	44 <sup>b</sup>	46 <sup>b</sup>	50 <sup>b</sup>	35 <sup>b</sup>	56 <sup>b</sup>	55 <sup>b</sup>	80 <sup>b</sup>	32 <sup>b</sup>	41 <sup>b</sup>	38 <sup>b</sup>	42 <sup>b</sup>	38 <sup>b</sup>	37 <sup>b</sup>
Anthracene	µg/kg	44	90 <sup>b</sup>	100 <sup>b</sup>	88 <sup>b</sup>	170 <sup>b</sup>	150 <sup>b</sup>	1500 <sup>b</sup>	60 <sup>b</sup>	69 <sup>b</sup>	270 <sup>b</sup>	150 <sup>b</sup>	91 <sup>b</sup>	110 <sup>b</sup>
Benzaldehyde	µg/kg	29 U	28 U	29 U	29 U	54 U	56 U	110 U	28 U	28 U	54 U	25 U	56 U	54 U
Benzo(a)anthracene	µg/kg	290 <sup>b</sup>	520 <sup>b</sup>	500 <sup>b</sup>	540 <sup>b</sup>	820 <sup>b</sup>	690 <sup>b</sup>	1900 <sup>b</sup>	380 <sup>b</sup>	390 <sup>b</sup>	960 <sup>b</sup>	510 <sup>b</sup>	590 <sup>b</sup>	580 <sup>b</sup>
Benzo(a)pyrene	µg/kg	340 <sup>b</sup>	590 <sup>b</sup>	570 <sup>b</sup>	610 <sup>b</sup>	850 <sup>b</sup>	750 <sup>b</sup>	1600 <sup>b</sup>	430 <sup>b</sup>	430 <sup>b</sup>	1000 <sup>b</sup>	580 <sup>b</sup>	820 <sup>b</sup>	750 <sup>b</sup>
Benzo(bifluoranthene	µg/kg	600 <sup>b</sup>	1100 <sup>b</sup>	1000 <sup>b</sup>	1100 <sup>b</sup>	1400 <sup>b</sup>	1400 <sup>b</sup>	2700 <sup>b</sup>	870 <sup>b</sup>	860 <sup>b</sup>	1500 <sup>b</sup>	790 <sup>b</sup>	1200 <sup>b</sup>	1200 <sup>b</sup>
Benzo(g,h,i)perylene	µg/kg	230 <sup>b</sup>	340 <sup>b</sup>	300 <sup>b</sup>	300 <sup>b</sup>	810 <sup>b</sup>	380 <sup>b</sup>	630 <sup>b</sup>	240 <sup>b</sup>	210 <sup>b</sup>	490 <sup>b</sup>	300 <sup>b</sup>	560 <sup>b</sup>	440 <sup>b</sup>
Benzo(k)fluoranthene	µg/kg	280 <sup>b</sup>	410 <sup>b</sup>	400 <sup>b</sup>	410 <sup>b</sup>	560 <sup>b</sup>	570 <sup>b</sup>	1100 <sup>b</sup>	280 <sup>b</sup>	290 <sup>b</sup>	350 <sup>b</sup>	220	350 <sup>b</sup>	360 <sup>b</sup>
bis(2-Ethylhexyl)phthalate (DEHP)	µg/kg	130 <sup>a</sup>	80 J <sup>a</sup>	150 <sup>a</sup>	79 J <sup>a</sup>	150 J <sup>a</sup>	130 U	230 U	100 <sup>a</sup>	120 J <sup>a</sup>	160 <sup>a</sup>	150 J <sup>a</sup>	140 J <sup>a</sup>	
Butyl benzylphthalate (BBP)	µg/kg	28 J	27 U	28 U	27 U	52 U	54 U	100 U	27 U	49 J	52 U	24 U	54 U	52 U
Carbazole	µg/kg	32 J	72 <sup>ab</sup>	85 <sup>ab</sup>	77 <sup>ab</sup>	180 <sup>ab</sup>	110 J <sup>ab</sup>	280 <sup>ab</sup>	56 J	54 J	250 <sup>ab</sup>	57	81 J <sup>ab</sup>	86 J <sup>ab</sup>
Chrysene	µg/kg	360 <sup>b</sup>	680 <sup>b</sup>	610 <sup>b</sup>	700 <sup>b</sup>	1000 <sup>b</sup>	900 <sup>b</sup>	1900 <sup>b</sup>	520 <sup>b</sup>	480 <sup>b</sup>	1100 <sup>b</sup>	540 <sup>b</sup>	840 <sup>b</sup>	760 <sup>b</sup>
Dibenz(a,h)anthracene	µg/kg	55 <sup>b</sup>	88 <sup>b</sup>	0.83 U	88 <sup>b</sup>	190 <sup>b</sup>	110 <sup>b</sup>	190 <sup>b</sup>	0.80 U	0.80 U	110 <sup>b</sup>	76 <sup>b</sup>	110 <sup>b</sup>	89 <sup>b</sup>
Dibenzofuran	µg/kg	16 U	22 J	30 J	25 J	94 J	39 J	89 J	16 J	17 J	100 J	29 J	32 U	31 U
Dimethyl phthalate	µg/kg	18 U	17 U	18 U	17 U	33 U	34 U	64 U	17 U	17 U	33 U	15 U	34 U	33 U
Di-n-butylphthalate (DBP)	µg/kg	44 J <sup>ab</sup>	27 U	29 J <sup>ab</sup>	36 J <sup>ab</sup>	52 U	54 U	100 U	27 U	33 J <sup>ab</sup>	52 U	26 J <sup>ab</sup>	54 U	52 U
Fluoranthene	µg/kg	520 <sup>b</sup>	1300 <sup>b</sup>	1200 <sup>b</sup>	1300 <sup>b</sup>	2100 <sup>b</sup>	1800 <sup>b</sup>	4600 <sup>b</sup>	950 <sup>b</sup>	900 <sup>b</sup>	2800 <sup>b</sup>	1400 <sup>b</sup>	1600 <sup>b</sup>	1700 <sup>b</sup>
Fluorene	µg/kg	12	28	46	31	83 <sup>b</sup>	60	260 <sup>b</sup>	18	23	150 <sup>b</sup>	35	35	42
Indeno(1,2,3-cd)pyrene	µg/kg	200	330 <sup>b</sup>	290 <sup>b</sup>	300 <sup>b</sup>	690 <sup>b</sup>	360 <sup>b</sup>	640 <sup>b</sup>	230 <sup>b</sup>	210 <sup>b</sup>	470 <sup>b</sup>	290 <sup>b</sup>	510 <sup>b</sup>	390 <sup>b</sup>
Naphthalene	µg/kg	23	19	29	25	99	29	37	10	16	54	40	20	21
Phenanthrene	µg/kg	190	480 <sup>b</sup>	560 <sup>b</sup>	510 <sup>b</sup>	1400 <sup>b</sup>	800 <sup>b</sup>	2500 <sup>b</sup>	350 <sup>b</sup>	350 <sup>b</sup>	1900 <sup>b</sup>	630 <sup>b</sup>	610 <sup>b</sup>	730 <sup>b</sup>
Phenol	µg/kg	10 U	9.8 U	10 U	10 U	19 U	20 U	37 U	15 J	9.7 U	19 U	8.8 U	20 U	19 U
Pyrene	µg/kg	480 <sup>b</sup>	1100 <sup>b</sup>	1000 <sup>b</sup>	1100 <sup>b</sup>	1800 <sup>b</sup>	1600 <sup>b</sup>	3900 <sup>b</sup>	830 <sup>b</sup>	790 <sup>b</sup>	1700 <sup>b</sup>	890 <sup>b</sup>	1200 <sup>b</sup>	1100 <sup>b</sup>
<b>Metals</b>														
Aluminum	mg/kg	14000	8600	11000	7600	9000	7400	6900	7900	9700	8100	4300	7000	5000
Antimony	mg/kg	0.71 J <sup>a</sup>	0.24 J	0.39 J <sup>a</sup>	0.40 J <sup>a</sup>	0.30 J <sup>a</sup>	0.22 J	0.28 J <sup>a</sup>	0.21 J	0.24 J	0.26 J	0.20 J	0.17 J	0.14 J
Arsenic	mg/kg	12 <sup>b</sup>	7.7	10 <sup>b</sup>	9.2	8.9	7.3	7.2	6.8	8.6	7.2	4.8	6.2	4.8
Barium	mg/kg	160 <sup>b</sup>	120 <sup>b</sup>	160 <sup>b</sup>	110 <sup>b</sup>	130 <sup>b</sup>	110 <sup>b</sup>	97 <sup>b</sup>	110 <sup>b</sup>	130 <sup>b</sup>	110 <sup>b</sup>	61 <sup>b</sup>	110 <sup>b</sup>	74 <sup>b</sup>
Beryllium	mg/kg	0.83	0.46	0.64	0.45	0.55	0.44	0.39	0.44	0.53	0.73	0.30	0.45	0.31
Cadm														

Table 4

**Summary of Detections - Comparison to ESVs**  
**Floodplain Soil Samples - Adjacent to OU1**  
**South Dayton Dump and Landfill Site**  
**Moraine, Ohio**

Sample Location:	SS-168	SS-169	SS-169	SS-170	SS-170	SS-171	SS-171	SS-172	SS-172	SS-173	SS-173	SS-174	SS-174
Sample ID:	S-38443-080718-JC-132	S-38443-080718-JC-134	S-38443-080718-JC-135	S-38443-080718-JC-136	S-38443-080718-JC-137	S-38443-080718-JC-138	S-38443-080718-JC-139	S-38443-080718-JC-141	S-38443-080718-JC-142	S-38443-080818-JC-143	S-38443-080818-JC-144	S-38443-080818-JC-145	S-38443-080818-JC-146
Sample Date:	8/7/2018	8/7/2018	8/7/2018	8/7/2018	8/7/2018	8/7/2018	8/7/2018	8/7/2018	8/7/2018	8/8/2018	8/8/2018	8/8/2018	8/8/2018
Sample Depth:	0.67-2.17 ft BGS	0.17-0.67 ft BGS	0.67-2.17 ft BGS										

Parameters	Units													
<b>PCBs</b>														
Aroclor-1242 (PCB-1242)	µg/kg	23 U	24 U	240 U	23 U	120 U	24 U	22 U	22 U	24 U	23 U	20 U	24 U	23 U
Aroclor-1248 (PCB-1248)	µg/kg	30 U	30 U	4600	29 U	150 U	31 U	28 U	28 U	30 U	30 U	26 U	30 U	29 U
Aroclor-1254 (PCB-1254)	µg/kg	440	110	290 U	79	860	65	150	60	70	110	360	51 J	63
<b>Pesticides</b>														
4,4'-DDE	µg/kg	2.4 NJ <sup>b</sup>	1.9 U	19 U	1.8 U	9.2 U	2.5 J <sup>b</sup>	1.7 U	1.7 U	1.9 U	1.9 U	8.1 U	9.6 U	9.2 U
4,4'-DDT	µg/kg	1.4 U	1.4 U	14 U	1.4 U	6.9 U	1.4 U	1.3 U	1.3 U	1.4 U	1.4 U	17 J <sup>b</sup>	6.1 U	7.2 U
alpha-Chlordane	µg/kg	1.8 U	1.9 U	19 U	1.8 U	9.1 U	1.9 U	1.7 U	1.7 U	1.9 U	2.5 J	11 J <sup>a</sup>	9.5 U	9.1 U
Endosulfan sulfate	µg/kg	2.9 J <sup>b</sup>	1.6 U	16 U	1.6 U	7.8 U	1.6 U	1.5 U	1.5 U	1.6 U	1.6 U	6.9 U	8.1 U	7.8 U
Endrin aldehyde	µg/kg	1.6 U	1.6 U	16 U	1.6 U	8.0 U	1.7 U	1.5 U	1.5 U	1.6 U	1.6 U	7.0 U	8.3 U	7.9 U
gamma-BHC (lindane)	µg/kg	2.2 U	2.2 U	29 J <sup>abc</sup>	2.2 U	11 U	2.3 U	2.1 U	2.1 U	2.2 U	2.2 U	9.6 U	11 U	11 U
gamma-Chlordane	µg/kg	1.5 U	1.5 U	15 U	1.5 U	7.5 U	1.6 U	1.4 U	1.4 U	1.5 U	1.5 U	1.5 NJ	6.6 U	7.5 U
Heptachlor epoxide	µg/kg	2.8 NJ <sup>ab</sup>	1.8 U	18 U	1.8 U	8.8 U	1.8 U	1.7 U	1.7 U	1.8 U	1.8 U	7.7 U	9.1 U	8.7 U
Toxaphene	µg/kg	31 U	31 U	310 U	30 U	150 U	32 U	29 U	29 U	31 U	31 U	130 U	160 U	150 U
<b>Herbicides</b>														
2,4,5-TP (Silvex)	µg/kg	19 U	18 U	73 J <sup>ab</sup>	17 U	17 U	18 U	16 U	17 U	17 U	16 U	15 U	17 U	17 U
<b>General Chemistry</b>														
Cyanide (total)	mg/kg	0.25 U	0.22 U	0.22 U	0.22 U	0.22 U	0.24 U	0.19 U	0.22 U	0.23 U	0.22 U	0.19 U	0.22 U	0.24 U
Soot carbon	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
Total organic carbon (TOC)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-

## Notes

J - Estimated concentration.

NJ - Tentatively identified compound, estimated concentration.

R - Rejected.

U - Not detected at the associated reporting limit.

UJ - Not detected; associated reporting limit is estimated.

Table 4

**Summary of Detections - Comparison to ESVs**  
**Floodplain Soil Samples - Adjacent to OU1**  
**South Dayton Dump and Landfill Site**  
**Moraine, Ohio**

Sample Location:	SS-174	SS-175	SS-175	SS-178	SS-178	SS-179	SS-179	SS-180	SS-180	SS-180	SS-181	SS-181	SS-181	SS-182
Sample ID:	S-38443-080818-JC-147	S-38443-080818-JC-148	S-38443-080818-JC-149	SS-38443-111419-GL-001	SS-38443-111419-GL-002	SS-38443-111419-GL-003	SS-38443-111419-GL-004	SS-38443-111419-GL-019	SS-38443-111419-GL-019	SS-38443-111419-GL-020	SS-38443-111419-GL-005	SS-38443-111419-GL-006	SS-38443-111419-GL-007	
Sample Date:	8/8/2018	8/8/2018	8/8/2018	11/14/2019	11/14/2019	11/14/2019	11/14/2019	11/14/2019	11/14/2019	11/14/2019	11/14/2019	11/14/2019	11/14/2019	
Sample Depth:	0.67-2.17 ft BGS	0.17-0.67 ft BGS	0.67-2.17 ft BGS	0-0.5 ft BGS	0.5-2 ft BGS	0-0.5 ft BGS	0.5-2 ft BGS	0-0.5 ft BGS	0-0.5 ft BGS	0.5-2 ft BGS	0-0.5 ft BGS	0.5-2 ft BGS	0-0.5 ft BGS	
Duplicate														
<b>Parameters</b>	<b>Units</b>													
<b>Volatiles</b>														
1,4-Dichlorobenzene	µg/kg	0.95 U	1.1 U	0.94 U	-	-	-	-	-	-	-	-	-	-
Acetone	µg/kg	38	25 U	22 U	-	-	-	-	-	-	-	-	-	-
Methylene chloride	µg/kg	13 U	14 U	13 U	-	-	-	-	-	-	-	-	-	-
Toluene	µg/kg	0.83 U	0.92 U	0.83 U	-	-	-	-	-	-	-	-	-	-
<b>Semi-Volatiles</b>														
2-Methylnaphthalene	µg/kg	21 <sup>b</sup>	27 J <sup>b</sup>	11	49 <sup>b</sup>	8.9 J	6.1 J	9.4 J	33 J <sup>b</sup>	20 J	30 J <sup>b</sup>	12 J	11 J	
Acenaphthene	µg/kg	54 <sup>b</sup>	45 <sup>b</sup>	4.5 J	25 <sup>b</sup>	3.9 U	19 <sup>b</sup>	28 <sup>b</sup>	44 <sup>b</sup>	34 J <sup>b</sup>	53 <sup>b</sup>	48 <sup>b</sup>	21 <sup>b</sup>	
Acenaphthylene	µg/kg	37 <sup>b</sup>	32 J <sup>b</sup>	11 <sup>b</sup>	42 <sup>b</sup>	7.7 J <sup>b</sup>	7.5 J <sup>b</sup>	11 J <sup>b</sup>	19 <sup>b</sup>	18 U	17 J <sup>b</sup>	14 J <sup>b</sup>	11 J <sup>b</sup>	
Anthracene	µg/kg	160 <sup>b</sup>	100 <sup>b</sup>	18	77 <sup>b</sup>	22	100 <sup>b</sup>	97 <sup>b</sup>	150 <sup>b</sup>	120 <sup>b</sup>	140 <sup>b</sup>	140 <sup>b</sup>	53	
Benzaldehyde	µg/kg	54 U	110 U	28 U	28 U	31 U	25 U	25 U	59 U	110 U	55 U	54 U	27 U	
Benzo(a)anthracene	µg/kg	780 <sup>b</sup>	520 <sup>b</sup>	100	360 <sup>b</sup>	89	500 <sup>b</sup>	560 <sup>b</sup>	890 <sup>b</sup>	630 <sup>b</sup>	790 <sup>b</sup>	790 <sup>b</sup>	320 <sup>b</sup>	
Benzo(a)pyrene	µg/kg	940 <sup>b</sup>	610 <sup>b</sup>	130	380 <sup>b</sup>	73	500 <sup>b</sup>	560 <sup>b</sup>	960 <sup>b</sup>	660 <sup>b</sup>	820 <sup>b</sup>	830 <sup>b</sup>	390 <sup>b</sup>	
Benzo(b)fluoranthene	µg/kg	1500 <sup>b</sup>	980 <sup>b</sup>	190	480 <sup>b</sup>	90	940 J <sup>b</sup>	800 <sup>b</sup>	1700 <sup>b</sup>	1100 <sup>b</sup>	1400 <sup>b</sup>	1500 <sup>b</sup>	710 <sup>b</sup>	
Benzo(g,h,i)perylene	µg/kg	530 <sup>b</sup>	380 <sup>b</sup>	110	200 <sup>b</sup>	39	120 J	240 <sup>b</sup>	210 <sup>b</sup>	160	210 <sup>b</sup>	210 <sup>b</sup>	140	
Benzo(k)fluoranthene	µg/kg	440 <sup>b</sup>	210	67	200	40	350 <sup>b</sup>	320 <sup>b</sup>	670 <sup>b</sup>	450 <sup>b</sup>	530 <sup>b</sup>	530 <sup>b</sup>	250 <sup>b</sup>	
bis(2-Ethylhexyl)phthalate (DEHP)	µg/kg	140 J <sup>a</sup>	250 U	120 <sup>a</sup>	62 U	70 U	55 U	56 U	130 U	4500 <sup>ab</sup>	120 U	120 U	60 U	
Butyl benzylphthalate (BBP)	µg/kg	52 U	110 J <sup>b</sup>	27 U	27 U	30 U	24 U	24 U	56 U	100 U	53 U	51 U	26 U	
Carbazole	µg/kg	110 J <sup>ab</sup>	95 U	23 U	41 J	26 U	68	91 <sup>ab</sup>	130 <sup>ab</sup>	98 J <sup>ab</sup>	110 J <sup>ab</sup>	110 J <sup>ab</sup>	39 J	
Chrysene	µg/kg	1000 <sup>b</sup>	630 <sup>b</sup>	140	410 <sup>b</sup>	86	580 <sup>b</sup>	650 <sup>b</sup>	1100 <sup>b</sup>	800 <sup>b</sup>	930 <sup>b</sup>	870 <sup>b</sup>	410 <sup>b</sup>	
Dibenz(a,h)anthracene	µg/kg	140 <sup>b</sup>	3.3 U	17	62 <sup>b</sup>	13 J	36 J <sup>b</sup>	68 <sup>b</sup>	59 <sup>b</sup>	52 J <sup>b</sup>	74 <sup>b</sup>	65 <sup>b</sup>	40 <sup>b</sup>	
Dibenzofuran	µg/kg	47 J	65 U	16 U	30 J	18 U	14 U	21 J	35 J	60 U	38 J	30 J	15 U	
Dimethyl phthalate	µg/kg	33 U	70 U	17 U	17 U	19 U	15 U	15 U	36 U	64 U	34 U	33 U	1600 <sup>ab</sup>	
Di-n-butylphthalate (DBP)	µg/kg	52 U	110 U	27 U	27 U	30 U	24 U	24 U	56 U	100 U	53 U	51 U	26 U	
Fluoranthene	µg/kg	2400 <sup>b</sup>	1300 <sup>b</sup>	200	730 <sup>b</sup>	130	1100 J <sup>b</sup>	1300 <sup>b</sup>	2100 <sup>b</sup>	1600 <sup>b</sup>	1700 <sup>b</sup>	1900 <sup>b</sup>	760 <sup>b</sup>	
Fluorene	µg/kg	75	42	5.3 J	30	5.7 J	29	33	55	49 J	65	60	22	
Indeno(1,2,3-cd)pyrene	µg/kg	500 <sup>b</sup>	370 <sup>b</sup>	90	190	37	130	240 <sup>b</sup>	230 <sup>b</sup>	160	230 <sup>b</sup>	230 <sup>b</sup>	140	
Naphthalene	µg/kg	24	31 J	37 U	44	9.2 J	5.6 J	9.4 J	34 J	30 J	29 J	11 J	13 J	
Phenanthrene	µg/kg	1300 <sup>b</sup>	690 <sup>b</sup>	83	410 <sup>b</sup>	78	520 J <sup>b</sup>	630 <sup>b</sup>	1000 <sup>b</sup>	780 <sup>b</sup>	900 <sup>b</sup>	950 <sup>b</sup>	330 <sup>b</sup>	
Phenol	µg/kg	19 U	40 U	9.7 U	9.7 U	11 U	8.6 U	8.8 U	20 U	37 U	19 U	19 U	36 J	
Pyrene	µg/kg	1500 <sup>b</sup>	940 <sup>b</sup>	190	590 <sup>b</sup>	150	1100 J <sup>b</sup>	1100 <sup>b</sup>	1800 <sup>b</sup>	1500 <sup>b</sup>	1600 <sup>b</sup>	1500 <sup>b</sup>	750 <sup>b</sup>	
<b>Metals</b>														
Aluminum	mg/kg	4800	7300	4300	5600	2300	2100	3100	5000	3500	4700	3700	3600	
Antimony	mg/kg	0.13 J	0.18 J	0.17 J	0.22 J	0.15 UJ	0.13 UJ	0.11 UJ	0.13 J	0.12 UJ	0.13 J	0.15 J	0.12 UJ	
Arsenic	mg/kg	4.7	6.1	5.1	4.5	2.1	2.4	3.2	4.7	3.8	4.9	4.1	3.7	
Barium	mg/kg	77 <sup>b</sup>	100 <sup>b</sup>	89 <sup>b</sup>	88 <sup>b</sup>	38 <sup>b</sup>	28 <sup>b</sup>	43 <sup>b</sup>	77 <sup>b</sup>	53 <sup>b</sup>	71 <sup>b</sup>	61 <sup>b</sup>	45 <sup>b</sup>	
Beryllium	mg/kg	0.31	0.48	0.31	0.36	0.13 J	0.14 J	0.17 J	0.26	0.20	0.27	0.21	0.20	
Cadmium	mg/kg	0.39 <sup>a</sup>	0.89 <sup>a</sup>	0.56 <sup>a</sup>	0.68 <sup>a</sup>	0.15 J	0.13 J	0.21	0.30	0.25	0.27	0.25	0.20	
Calcium	mg/kg	93000	73000	100000	57000	94000	86000	80000	86000	90000	81000	850		

Table 4

**Summary of Detections - Comparison to ESVs**  
**Floodplain Soil Samples - Adjacent to OU1**  
**South Dayton Dump and Landfill Site**  
**Moraine, Ohio**

Sample Location:	SS-174	SS-175	SS-175	SS-178	SS-178	SS-179	SS-179	SS-180	SS-180	SS-181	SS-181	SS-182
Sample ID:	S-38443-080818-JC-147	S-38443-080818-JC-148	S-38443-080818-JC-149	SS-38443-111419-GL-001	SS-38443-111419-GL-002	SS-38443-111419-GL-003	SS-38443-111419-GL-004	SS-38443-111419-GL-019	SS-38443-111419-GL-020	SS-38443-111419-GL-005	SS-38443-111419-GL-006	SS-38443-111419-GL-007
Sample Date:	8/8/2018	8/8/2018	8/8/2018	11/14/2019	11/14/2019	11/14/2019	11/14/2019	11/14/2019	11/14/2019	11/14/2019	11/14/2019	11/14/2019
Sample Depth:	0.67-2.17 ft BGS	0.17-0.67 ft BGS	0.67-2.17 ft BGS	0-0.5 ft BGS	0.5-2 ft BGS	0-0.5 ft BGS	0.5-2 ft BGS	0-0.5 ft BGS	0.5-2 ft BGS	0-0.5 ft BGS	0.5-2 ft BGS	0-0.5 ft BGS
Duplicate												
Parameters	Units											
<b>PCBs</b>												
Aroclor-1242 (PCB-1242)	µg/kg	24 U	24 U	23 U	22 U	25 U	20 U	21 U	23 U	22 U	22 U	21 U
Aroclor-1248 (PCB-1248)	µg/kg	30 U	30 U	29 U	28 U	32 U	140	50 J	140	28 U	28 U	27 U
Aroclor-1254 (PCB-1254)	µg/kg	53 J	300	120	27 U	31 U	24 U	26 U	28 U	44 J	87	51 J
<b>Pesticides</b>												
4,4'-DDE	µg/kg	9.4 U	9.5 U	9.2 U	-	-	-	-	-	-	-	-
4,4'-DDT	µg/kg	7.0 U	7.1 U	6.9 U	-	-	-	-	-	-	-	-
alpha-Chlordane	µg/kg	9.3 U	9.5 U	9.1 U	-	-	-	-	-	-	-	-
Endosulfan sulfate	µg/kg	7.9 U	8.1 U	7.8 U	-	-	-	-	-	-	-	-
Endrin aldehyde	µg/kg	8.1 U	8.3 U	8.0 U	-	-	-	-	-	-	-	-
gamma-BHC (lindane)	µg/kg	11 U	11 U	11 U	-	-	-	-	-	-	-	-
gamma-Chlordane	µg/kg	7.6 U	7.8 U	7.5 U	-	-	-	-	-	-	-	-
Heptachlor epoxide	µg/kg	8.9 U	9.1 U	8.8 U	-	-	-	-	-	-	-	-
Toxaphene	µg/kg	160 U	160 U	150 U	-	-	-	-	-	-	-	-
<b>Herbicides</b>												
2,4,5-TP (Silvex)	µg/kg	16 U	17 U	17 U	-	-	-	-	-	-	-	-
<b>General Chemistry</b>												
Cyanide (total)	mg/kg	0.21 U	0.25 U	0.23 U	-	-	-	-	-	-	-	-
Soot carbon	mg/kg	-	-	-	21000	23000	33000	39000	20000	31000	29000	35000
Total organic carbon (TOC)	mg/kg	-	-	-	7900	4800	7200	7100	89000	10000	22000	11000
Notes												
J - Estimated concentration.												
NJ - Tentatively identified compound, estimated concentration.												
R - Rejected.												
U - Not detected at the associated reporting limit.												
UJ - Not detected; associated reporting limit is estimated.												

Table 4

**Summary of Detections - Comparison to ESVs**  
**Floodplain Soil Samples - Adjacent to OU1**  
**South Dayton Dump and Landfill Site**  
**Moraine, Ohio**

Sample Location:	SS-182	SS-182	SS-183	SS-183	SS-184	SS-184	SS-185	SS-185	SS-186	SS-186	SS-186	
Sample ID:	SS-38443-111419-GL-008	SS-38443-111419-GL-009	SS-38443-111419-GL-010	SS-38443-111419-GL-011	SS-38443-111419-GL-012	SS-38443-111419-GL-013	SS-38443-111419-GL-014	SS-38443-111419-GL-015	SS-38443-111419-GL-016	SS-38443-111419-GL-017	SS-38443-111419-GL-018	
Sample Date:	11/14/2019	11/14/2019	11/14/2019	11/14/2019	11/14/2019	11/14/2019	11/14/2019	11/14/2019	11/14/2019	11/14/2019	11/14/2019	
Sample Depth:	0.5-2 ft BGS	0.5-2 ft BGS	0-0.5 ft BGS	0-0.5 ft BGS	0.5-2 ft BGS							
<b>Parameters</b>												
<b>Units</b>												
<b>Volatiles</b>												
1,4-Dichlorobenzene	µg/kg	-	-	-	-	-	-	-	-	-	-	
Acetone	µg/kg	-	-	-	-	-	-	-	-	-	-	
Methylene chloride	µg/kg	-	-	-	-	-	-	-	-	-	-	
Toluene	µg/kg	-	-	-	-	-	-	-	-	-	-	
<b>Semi-Volatiles</b>												
2-Methylnaphthalene	µg/kg	11 J	14 J	27 J <sup>b</sup>	17 J	10 J	11 J	17 J	15 J	12 J	17 J	14 J
Acenaphthene	µg/kg	23 <sup>b</sup>	32 <sup>b</sup>	48 <sup>b</sup>	110 <sup>b</sup>	33 J <sup>b</sup>	12 J <sup>b</sup>	45 <sup>b</sup>	40 <sup>b</sup>	16 J <sup>b</sup>	22 <sup>b</sup>	21 <sup>b</sup>
Acenaphthylene	µg/kg	14 J <sup>b</sup>	11 J <sup>b</sup>	18 J <sup>b</sup>	26 J <sup>b</sup>	26 J <sup>b</sup>	13 J <sup>b</sup>	19 J <sup>b</sup>	13 J <sup>b</sup>	16 J <sup>b</sup>	16 J <sup>b</sup>	19 <sup>b</sup>
Anthracene	µg/kg	76 <sup>b</sup>	100 <sup>b</sup>	130 <sup>b</sup>	250 <sup>b</sup>	120 <sup>b</sup>	43 J	120 <sup>b</sup>	100 <sup>b</sup>	56	65 <sup>b</sup>	62 <sup>b</sup>
Benzaldehyde	µg/kg	26 U	26 U	56 U	54 U	56 U	26 U	55 U	28 U	32 J	38 J	29 U
Benzo(a)anthracene	µg/kg	490 <sup>b</sup>	510 <sup>b</sup>	730 <sup>b</sup>	870 <sup>b</sup>	630 <sup>b</sup>	390 J <sup>b</sup>	680 <sup>b</sup>	610 <sup>b</sup>	470 <sup>b</sup>	530 <sup>b</sup>	480 <sup>b</sup>
Benzo(a)pyrene	µg/kg	540 <sup>b</sup>	510 <sup>b</sup>	790 <sup>b</sup>	780 <sup>b</sup>	630 <sup>b</sup>	440 J <sup>b</sup>	710 <sup>b</sup>	670 <sup>b</sup>	550 <sup>b</sup>	610 <sup>b</sup>	560 <sup>b</sup>
Benzo(b)fluoranthene	µg/kg	930 <sup>b</sup>	820 <sup>b</sup>	1200 <sup>b</sup>	1200 <sup>b</sup>	1000 <sup>b</sup>	770 J <sup>b</sup>	1100 <sup>b</sup>	1100 <sup>b</sup>	990 <sup>b</sup>	1100 <sup>b</sup>	840 <sup>b</sup>
Benzo(g,h,i)perylene	µg/kg	160	240 <sup>b</sup>	240 <sup>b</sup>	500 <sup>b</sup>	540 <sup>b</sup>	120 J	620 <sup>b</sup>	190 <sup>b</sup>	180 <sup>b</sup>	210 <sup>b</sup>	250 <sup>b</sup>
Benzo(k)fluoranthene	µg/kg	350 <sup>b</sup>	290 <sup>b</sup>	610 <sup>b</sup>	450 <sup>b</sup>	350 <sup>b</sup>	330 J <sup>b</sup>	340 <sup>b</sup>	450 <sup>b</sup>	370 <sup>b</sup>	420 <sup>b</sup>	380 <sup>b</sup>
bis(2-Ethylhexyl)phthalate (DEHP)	µg/kg	57 U	57 U	120 U	390 <sup>ab</sup>	190 <sup>ab</sup>	57 U	130 J <sup>a</sup>	62 U	66 U	66 U	71 J <sup>a</sup>
Butyl benzylphthalate (BBP)	µg/kg	40 J	25 U	53 U	51 U	53 U	25 U	53 U	27 U	28 U	28 U	28 U
Carbazole	µg/kg	70 <sup>b</sup>	73 <sup>ab</sup>	110 J <sup>ab</sup>	140 <sup>ab</sup>	110 J <sup>ab</sup>	39 J	99 J <sup>ab</sup>	66	46 J	61 J	58 J
Chrysene	µg/kg	610 <sup>b</sup>	610 <sup>b</sup>	920 <sup>b</sup>	950 <sup>b</sup>	770 <sup>b</sup>	470 J <sup>b</sup>	820 <sup>b</sup>	810 <sup>b</sup>	630 <sup>b</sup>	710 <sup>b</sup>	650 <sup>b</sup>
Dibenz(a,h)anthracene	µg/kg	47 <sup>b</sup>	74 <sup>b</sup>	76 <sup>b</sup>	140 <sup>b</sup>	120 <sup>b</sup>	35 J <sup>b</sup>	130 <sup>b</sup>	57 <sup>b</sup>	54 <sup>b</sup>	63 <sup>b</sup>	70 <sup>b</sup>
Dibenzofuran	µg/kg	15 J	24 J	39 J	41 J	32 U	15 U	31 U	25 J	17 U	17 U	16 J
Dimethyl phthalate	µg/kg	22 J	16 U	34 U	33 U	34 U	16 U	34 U	17 U	18 U	18 U	18 U
Di-n-butylphthalate (DBP)	µg/kg	25 U	25 U	53 U	51 U	53 U	25 U	53 U	27 U	28 U	28 U	28 U
Fluoranthene	µg/kg	1200 <sup>b</sup>	1300 <sup>b</sup>	1800 <sup>b</sup>	1900 <sup>b</sup>	1600 <sup>b</sup>	830 J <sup>b</sup>	1700 <sup>b</sup>	1300 <sup>b</sup>	1100 <sup>b</sup>	1100 <sup>b</sup>	1100 <sup>b</sup>
Fluorene	µg/kg	26	35	53	94 <sup>b</sup>	42	15 J	49	42	19	25	26
Indeno(1,2,3-cd)pyrene	µg/kg	170	240 <sup>b</sup>	260 <sup>b</sup>	440 <sup>b</sup>	430 <sup>b</sup>	120 J	480 <sup>b</sup>	190	210 <sup>b</sup>	220 <sup>b</sup>	240 <sup>b</sup>
Naphthalene	µg/kg	11 J	16 J	30 J	18 J	12 J	10 J	16 J	15 J	13 J	18 J	16 J
Phenanthrene	µg/kg	500 <sup>b</sup>	660 <sup>b</sup>	840 <sup>b</sup>	1100 <sup>b</sup>	770 <sup>b</sup>	290 J <sup>b</sup>	780 <sup>b</sup>	680 <sup>b</sup>	400 <sup>b</sup>	480 <sup>b</sup>	410 <sup>b</sup>
Phenol	µg/kg	9.0 U	9.0 U	19 U	19 U	19 U	9.0 U	19 U	9.7 U	10 U	10 U	10 U
Pyrene	µg/kg	960 <sup>b</sup>	1000 <sup>b</sup>	1300 <sup>b</sup>	1600 <sup>b</sup>	1300 <sup>b</sup>	740 J <sup>b</sup>	1400 <sup>b</sup>	1300 <sup>b</sup>	1000 <sup>b</sup>	1000 <sup>b</sup>	920 <sup>b</sup>
<b>Metals</b>												
Aluminum	mg/kg	4400	3900	3500	4900	5000	4000	4700	6000	7900	8000	9700
Antimony	mg/kg	0.13 J	0.12 UJ	0.14 UJ	0.13 J	0.14 J	0.15 J	0.14 J	0.17 J	0.21 J	0.20 J	0.24 J
Arsenic	mg/kg	4.4	4.1	3.7	4.9	4.6	4.3	4.7	5.6	7.2	7.2	8.4
Barium	mg/kg	60 <sup>b</sup>	54 <sup>b</sup>	58 <sup>b</sup>	73 <sup>b</sup>	70 <sup>b</sup>	56 <sup>b</sup>	76 <sup>b</sup>	98 <sup>b</sup>	120 <sup>b</sup>	120 <sup>b</sup>	130 <sup>b</sup>
Beryllium	mg/kg	0.24	0.22	0.20 J	0.28	0.26	0.28	0.26	0.33	0.42 <sup>a</sup>	0.48 <sup>a</sup>	0.47 <sup>a</sup>
Cadmium	mg/kg	0.28	0.25	0.24	0.32	0.31	0.28	0.33	0.42 <sup>a</sup>	0.48 <sup>a</sup>	0.47 <sup>a</sup>	0.69 <sup>a</sup>
Calcium	mg/kg	80000	86000	85000	81000	89000	82000	80000	79000	72000	72000	67000
Chromium	mg/kg	9.1	8.7	8.6	11	11	9.7	13	14	15	15	20
Chromium III (trivalent)	mg/kg	9.1	8.7	7.8	11	11	9.0	13	14	15	15	20
Chromium VI (hexavalent)	mg/kg	0.59 U	0.59 U	0.81 J <sup>a</sup>	0.61 U	0.64 U	0.69 J <sup>a</sup>	0.63 U	0.63 U	3.4 U	3.4 U	0.66 U
Cobalt	mg/kg	3.6	3.4	3.1	4.1	4.0	3.8	3.9	4.8	6.1	6.2	7.2
Copper	mg/kg	12	11	11	15	14	12	15	19	21	21	26
Iron	mg/kg	9800	9300	8500	11000	11000	10000	11000	13000	16000	17000	19000
Lead	mg/kg	15										

Table 4

**Summary of Detections - Comparison to ESVs**  
**Floodplain Soil Samples - Adjacent to OU1**  
**South Dayton Dump and Landfill Site**  
**Moraine, Ohio**

Sample Location:	SS-182	SS-182	SS-183	SS-183	SS-184	SS-184	SS-185	SS-185	SS-186	SS-186	SS-186	SS-186
Sample ID:	SS-38443-111419-GL-008	SS-38443-111419-GL-009	SS-38443-111419-GL-010	SS-38443-111419-GL-011	SS-38443-111419-GL-012	SS-38443-111419-GL-013	SS-38443-111419-GL-014	SS-38443-111419-GL-015	SS-38443-111419-GL-016	SS-38443-111419-GL-017	SS-38443-111419-GL-018	
Sample Date:	11/14/2019	11/14/2019	11/14/2019	11/14/2019	11/14/2019	11/14/2019	11/14/2019	11/14/2019	11/14/2019	11/14/2019	11/14/2019	11/14/2019
Sample Depth:	0.5-2 ft BGS	0.5-2 ft BGS	0-0.5 ft BGS	0-0.5 ft BGS	0-0.5 ft BGS	Duplicate						
Parameters	Units											
<b>PCBs</b>												
Aroclor-1242 (PCB-1242)	µg/kg	21 U	21 U	23 U	22 U	22 U	23 U	48 J	53 J	61 J	23 U	
Aroclor-1248 (PCB-1248)	µg/kg	27 U	27 U	180	28 U	28 U	150	29 U	31 U	30 U	29 U	
Aroclor-1254 (PCB-1254)	µg/kg	35 J	44 J	28 U	38 J	62	43 J	28 U	120	53 J	58 J	130
<b>Pesticides</b>												
4,4'-DDE	µg/kg	-	-	-	-	-	-	-	-	-	-	
4,4'-DDT	µg/kg	-	-	-	-	-	-	-	-	-	-	
alpha-Chlordane	µg/kg	-	-	-	-	-	-	-	-	-	-	
Endosulfan sulfate	µg/kg	-	-	-	-	-	-	-	-	-	-	
Endrin aldehyde	µg/kg	-	-	-	-	-	-	-	-	-	-	
gamma-BHC (lindane)	µg/kg	-	-	-	-	-	-	-	-	-	-	
gamma-Chlordane	µg/kg	-	-	-	-	-	-	-	-	-	-	
Heptachlor epoxide	µg/kg	-	-	-	-	-	-	-	-	-	-	
Toxaphene	µg/kg	-	-	-	-	-	-	-	-	-	-	
<b>Herbicides</b>												
2,4,5-TP (Silvex)	µg/kg	-	-	-	-	-	-	-	-	-	-	
<b>General Chemistry</b>												
Cyanide (total)	mg/kg	-	-	-	-	-	-	-	-	-	-	
Soot carbon	mg/kg	28000	27000	25000	26000	25000	30000	30000	21000	16000	19000	13000
Total organic carbon (TOC)	mg/kg	11000	12000	14000	18000	21000	13000	23000	18000	30000	31000	93000

## Notes

J - Estimated concentration.

NJ - Tentatively identified compound, estimated concentration.

R - Rejected.

U - Not detected at the associated reporting limit.

UJ - Not detected; associated reporting limit is estimated.

Table 5

**Summary of Detections - Comparison to RSLs**  
**Floodplain Soil Samples - Upstream**  
**South Dayton Dump and Landfill Site**  
**Moraine, Ohio**

Sample Location:  
 Sample ID:  
 Sample Date:  
 Sample Depth:

SS-201 SS-38443-121018-JC-201 12/10/2018 0-0.5 ft BGS	SS-201 SS-38443-121018-JC-218 12/10/2018 0.5-2 ft BGS	SS-202 SS-38443-121018-JC-202 12/10/2018 0-0.5 ft BGS	SS-202 SS-38443-121018-JC-219 12/10/2018 0.5-2 ft BGS	SS-203 SS-38443-121018-JC-203 12/10/2018 0-0.5 ft BGS	SS-203 SS-38443-121018-JC-220 12/10/2018 0.5-2 ft BGS	SS-204 SS-38443-121018-JC-204 12/10/2018 0-0.5 ft BGS	SS-204 SS-38443-121018-JC-221 12/10/2018 0.5-2 ft BGS	SS-204 SS-38443-121018-JC-200 12/10/2018 Duplicate
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Parameters	Units	RSL Industrial (TR=1E-06, THQ=0.1) a	RSL Residential (TR=1E-06, THQ=0.1) b
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**Volatiles****Semi-Volatiles**

2-Methylnaphthalene	µg/kg	17	300000	24000	7.9 J	15 J	16 J	27	10 J	16 J	9.6 J	12 J	14 J
Acenaphthene	µg/kg	14	4500000	360000	22	38	19 J	29	14 J	14 J	9.6 J	13 J	14 J
Acenaphthylene	µg/kg	18	-	-	16 J	23	36	48	25	28	25	27	36
Anthracene	µg/kg	18	2300000	1800000	71	130	65	79	40	39	36	36	41
Benzaldehyde	µg/kg	3	820000	170000	26 U	26 U	34 J	29 U	31 U	30 U	30 U	30 U	30 U
Benzo(a)anthracene	µg/kg	18	21000	1100	280	500	420	440	270	280	270	260	290
Benzo(a)pyrene	µg/kg	18	2100	110	280 <sup>b</sup>	490 <sup>b</sup>	540 <sup>b</sup>	540 <sup>b</sup>	350 <sup>b</sup>	330 <sup>b</sup>	310 <sup>b</sup>	300 <sup>b</sup>	340 <sup>b</sup>
Benzo(b)fluoranthene	µg/kg	18	21000	1100	480	720	990	880	540	560	510	500	560
Benzo(g,h,i)perylene	µg/kg	18	-	-	190	350	300	270	310	240	220	260	
Benzo(k)fluoranthene	µg/kg	18	210000	11000	170	340	380	380	180	140	190	160	180
bis(2-Ethylhexyl)phthalate (DEHP)	µg/kg	15	160000	39000	240	93 U	160	140	84 J	150	78 J	93	96
Butyl benzylphthalate (BBP)	µg/kg	2	1200000	290000	25 U	25 U	29 U	28 U	29 U	28 U	29 U	30 J	29 U
Carbazole	µg/kg	16	-	-	39 J	84	57 J	54 J	33 J	29 J	30 J	31 J	35 J
Chrysene	µg/kg	18	2100000	110000	330	590	600	560	400	360	360	340	370
Dibenz(a,h)anthracene	µg/kg	14	2100	110	7.9 U	7.8 U	9.0 U	8.7 U	66	58	64	68	76
Dibenzofuran	µg/kg	4	100000	7300	15 U	22 J	22 J	16 J	17 U				
Di-n-butylphthalate (DBP)	µg/kg	6	8200000	630000	25 U	25 U	29 U	28 U	29 U	28 J	29 U	28 J	29 U
Fluoranthene	µg/kg	18	3000000	240000	760	1300	1300	1100	640	560	570	550	590
Fluorene	µg/kg	15	3000000	240000	21	37	20	26	12 J	14 J	10 J	12 J	14 J
Indeno(1,2,3-cd)pyrene	µg/kg	18	21000	1100	170	290	270	270	240	250	220	200	250
Naphthalene	µg/kg	15	17000	3800	2.8 U	11 J	16 J	22	11 J	16 J	9.3 J	11 J	11 J
Phenanthrene	µg/kg	18	-	-	340	610	350	400	210	200	190	190	200
Pyrene	µg/kg	18	2300000	180000	490	820	780	630	480	470	480	460	520

**Metals**

Aluminum	mg/kg	18	110000	7700	6400	7200	9600 <sup>b</sup>	11000 <sup>b</sup>	9800 <sup>b</sup>	11000 <sup>b</sup>	10000 <sup>b</sup>	12000 <sup>b</sup>	12000 <sup>b</sup>
Antimony	mg/kg	18	47	3.1	0.19 J	0.21 J	0.26 J	0.29 J	0.26 J	0.31 J	0.25 J	0.31 J	0.30 J
Arsenic	mg/kg	18	3	0.68	6.7 <sup>ab</sup>	7.1 <sup>ab</sup>	8.2 <sup>ab</sup>	9.5 <sup>ab</sup>	8.6 <sup>ab</sup>	10 <sup>ab</sup>	8.5 <sup>ab</sup>	9.8 <sup>ab</sup>	10 <sup>ab</sup>
Barium	mg/kg	18	22000	1500	73	75	130	140	130	150	130	150	150
Beryllium	mg/kg	18	230	16	0.32	0.37	0.51	0.57	0.51	0.74	0.51	0.61	0.63
Cadmium	mg/kg	18	98	-	0.45	0.52	0.70	1.4	0.69	1.7	0.64	1.0	1.1
Calcium	mg/kg	18	-	-	82000	74000	63000	59000	66000	57000	65000	58000	57000
Chromium	mg/kg	18	-	-	15	16	20	37	21	40	20	28	30
Cobalt	mg/kg	18	35	2.3	5.0 <sup>b</sup>	5.1 <sup>b</sup>	7.1 <sup>b</sup>	7.9 <sup>b</sup>	7.4 <sup>b</sup>	8.4 <sup>b</sup>	7.4 <sup>b</sup>	8.3 <sup>b</sup>	8.5 <sup>b</sup>
Copper	mg/kg	18	4700	310	20	21	27	39	27	44	26	33	34
Iron	mg/kg	18	82000	5500	13000 <sup>b</sup>	14000 <sup>b</sup>	19000 <sup>b</sup>	20000 <sup>b</sup>	19000 <sup>b</sup>	21000 <sup>b</sup>	19000 <sup>b</sup>	22000 <sup>b</sup>	22000 <sup>b</sup>
Lead	mg/kg	18	800	400	29	39	34	73	34	75	32	47	52
Magnesium	mg/kg	18	-	-	31000	32000	22000	22000	24000	22000	24000	21000	21000
Manganese	mg/kg	18	2600	180	350 <sup>b</sup>	370 <sup>b</sup>	540 <sup>b</sup>	560 <sup>b</sup>	580 <sup>b</sup>	590 <sup>b</sup>	560 <sup>b</sup>	590 <sup>b</sup>	590 <sup>b</sup>
Mercury	mg/kg	18	4.6	1.1	0.058 J	0.057 J	0.12	0.14 J	0.090 J	0.14	0.086 J	0.11 J	0.12 J
Nickel	mg/kg	18	2200	150	15	16	21	28	21	29	21	26	28
Potassium	mg/kg	18	-	-	870	1000	1500	1400	1500	1300	1400	1500	1500
Selenium	mg/kg	18	580	39	0.38 J	0.34 J	0.68 J	0.70 J	0.70 J	0.81 J	0.71 J	0.74 J	0.76 J
Silver	mg/kg	18	580	39	0.23	0.28	0.33	0.80	0.37	0.92	0.33	0.65	0.70
Sodium	mg/kg	17	-	-	110 J	100 J	92 J	94 J	93 J	91 J	97 J	96 J	100 J
Thallium	mg/kg	18	1.2	0.078	0.19 <sup>b</sup>	0.21 <sup>b</sup>	0.31 <sup>b</sup>	0.35 <sup>b</sup>	0.32 <sup>b</sup>	0.37 <sup>b</sup>	0.33 <sup>b</sup>	0.38 <sup>b</sup>	0.38 <sup>b</sup>
Vanadium	mg/kg	18	580	39	17	18	22	25	22	25	23	27	27
Zinc	mg/kg	18	35000	2300	68	76	110	130	110	140	100	120	130

Table 5

**Summary of Detections - Comparison to RSLs**  
**Floodplain Soil Samples - Upstream**  
**South Dayton Dump and Landfill Site**  
**Moraine, Ohio**

Sample Location:	SS-201	SS-201	SS-202	SS-202	SS-203	SS-203	SS-204	SS-204	SS-204				
Sample ID:	SS-38443-121018-JC-201	SS-38443-121018-JC-218	SS-38443-121018-JC-202	SS-38443-121018-JC-219	SS-38443-121018-JC-203	SS-38443-121018-JC-220	SS-38443-121018-JC-204	SS-38443-121018-JC-221	SS-38443-121018-JC-200				
Sample Date:	12/10/2018	12/10/2018	12/10/2018	12/10/2018	12/10/2018	12/10/2018	12/10/2018	12/10/2018	12/10/2018				
Sample Depth:	0-0.5 ft BGS	0.5-2 ft BGS	0-0.5 ft BGS	0.5-2 ft BGS	0-0.5 ft BGS	0.5-2 ft BGS	0-0.5 ft BGS	0.5-2 ft BGS	0.5-2 ft BGS				
Parameters	Units	Detects	RSL Industrial (TR=1E-06, THQ=0.1) a	RSL Residential (TR=1E-06, THQ=0.1) b									
<b>PCBs</b>													
Aroclor-1254 (PCB-1254)	µg/kg	16	970	120	72	93 J	<b>210<sup>b</sup></b>	<b>330<sup>b</sup></b>	<b>150<sup>b</sup></b>	<b>2800<sup>ab</sup></b>	<b>160 J<sup>b</sup></b>	<b>210<sup>b</sup></b>	<b>200<sup>b</sup></b>
<b>Pesticides</b>													
4,4'-DDD	µg/kg	1	2500	190	1.7 U	1.7 U	9.6 U	9.4 U	1.9 U	1.9 U	4.1 NJ	9.6 U	9.3 U
4,4'-DDE	µg/kg	2	9300	2000	1.8 U	2.0 J	9.8 U	9.6 U	4.5 J	1.9 U	2.0 U	9.8 U	9.5 U
4,4'-DDT	µg/kg	4	8500	1900	2.0 J	1.9 NJ	7.3 U	7.2 U	3.6 NJ	1.4 U	2.7 NJ	7.3 U	7.1 U
Endrin aldehyde	µg/kg	1	-	-	1.5 U	1.5 U	8.5 U	8.3 U	1.7 U	2.0 NJ	1.7 U	8.5 U	8.2 U
<b>Herbicides</b>													
<b>General Chemistry</b>													
Cyanide (total)	mg/kg	3	15	2.3	0.24 U	0.20 U	0.26 U	0.24 U	0.23 U	0.23 U	0.29 J	0.22 U	0.23 U

## Notes

J - Estimated concentration.

NJ - Tentatively identified compound, estimated concentration.

R - Rejected.

U - Not detected at the associated reporting limit.

UJ - Not detected; associated reporting limit is estimated.

Table 5

**Summary of Detections - Comparison to RSLs**  
**Floodplain Soil Samples - Upstream**  
**South Dayton Dump and Landfill Site**  
**Moraine, Ohio**

Sample Location:	SS-205	SS-205	SS-206	SS-206	SS-207	SS-207	SS-208	SS-208	SS-208
Sample ID:	SS-38443-121018-JC-205	SS-38443-121018-JC-222	SS-38443-121018-JC-206	SS-38443-121018-JC-223	SS-38443-121018-JC-207	SS-38443-121018-JC-224	SS-38443-121018-JC-208	SS-38443-121018-JC-225	SS-38443-121018-JC-199
Sample Date:	12/10/2018	12/10/2018	12/10/2018	12/10/2018	12/10/2018	12/10/2018	12/10/2018	12/10/2018	12/10/2018
Sample Depth:	0-0.5 ft BGS	0.5-2 ft BGS	0.5-2 ft BGS						
<b>Parameters</b>									
<b>Units</b>									
<b>Volatiles</b>									
<b>Semi-Volatiles</b>									
2-Methylnaphthalene	µg/kg	11 J	16 J	4.3 J	2.4 U	10 J	22	13 J	25
Acenaphthene	µg/kg	14 J	15 J	3.6 U	3.6 U	15 J	18 J	14 J	3.7 U
Acenaphthylene	µg/kg	26	28	6.8 J	6.2 J	32	63	23	47
Anthracene	µg/kg	44	42	7.7 J	6.9 J	49	68	44	52
Benzaldehyde	µg/kg	85 J	29 U	29 U	29 U	46 J	29 U	31 U	30 U
Benzo(a)anthracene	µg/kg	330	290	52	53	370	470	300	430
Benzo(a)pyrene	µg/kg	390 <sup>b</sup>	320 <sup>b</sup>	63	67	440 <sup>b</sup>	510 <sup>b</sup>	320 <sup>b</sup>	460 <sup>b</sup>
Benzo(b)fluoranthene	µg/kg	620	510	110	110	740	840	590	810
Benzo(g,h,i)perylene	µg/kg	310	240	54	59	360	380	300	390
Benzo(k)fluoranthene	µg/kg	240	200	30	36	260	290	190	260
bis(2-Ethylhexyl)phthalate (DEHP)	µg/kg	80 J	100	88	64 U	76 J	120	68 U	130
Butyl benzylphthalate (BBP)	µg/kg	31 U	38 J	28 U	27 U	29 U	28 U	30 U	29 U
Carbazole	µg/kg	41 J	34 J	24 U	24 U	42 J	42 J	33 J	48 J
Chrysene	µg/kg	450	350	71	76	520	560	410	490
Dibenz(a,h)anthracene	µg/kg	82	66	20	20	95	110	70	110
Dibenzofuran	µg/kg	18 U	17 U	16 U	16 U	17 U	16 U	17 U	21 J
Di-n-butylphthalate (DBP)	µg/kg	31 U	30 J	28 J	27 U	30 J	29 J	30 U	29 U
Fluoranthene	µg/kg	770	540	120	150	890	810	640	690
Fluorene	µg/kg	15 J	15 J	3.4 U	3.4 U	16 J	18 J	3.7 U	21
Indeno(1,2,3-cd)pyrene	µg/kg	280	220	48	54	350	350	210	340
Naphthalene	µg/kg	9.3 J	13 J	3.0 U	3.0 U	12 J	18 J	8.9 J	21
Phenanthrene	µg/kg	260	230	43	53	280	260	230	340
Pyrene	µg/kg	630	510	98	140	730	780	620	730
<b>Metals</b>									
Aluminum	mg/kg	10000 <sup>b</sup>	11000 <sup>b</sup>	11000 <sup>b</sup>	13000 <sup>b</sup>	9000 <sup>b</sup>	11000 <sup>b</sup>	9200 <sup>b</sup>	12000 <sup>b</sup>
Antimony	mg/kg	0.27 J	0.31 J	0.19 J	0.22 J	0.31 J	0.29 J	0.27 J	0.35 J
Arsenic	mg/kg	8.3 <sup>ab</sup>	9.8 <sup>ab</sup>	7.6 <sup>ab</sup>	9.7 <sup>ab</sup>	8.1 <sup>ab</sup>	9.9 <sup>ab</sup>	8.3 <sup>ab</sup>	10 <sup>ab</sup>
Barium	mg/kg	130	140	150	140	130	150	130	150
Beryllium	mg/kg	0.54	0.62	0.65	0.77	0.51	0.64	0.59	0.77
Cadmium	mg/kg	0.66	1.5	0.33	0.35	0.63	1.9	0.69	2.0
Calcium	mg/kg	69000	62000	31000	20000	69000	61000	68000	58000
Chromium	mg/kg	20	36	15	18	19	44	20	45
Cobalt	mg/kg	7.3 <sup>b</sup>	8.0 <sup>b</sup>	13 <sup>b</sup>	12 <sup>b</sup>	7.0 <sup>b</sup>	8.1 <sup>b</sup>	7.1 <sup>b</sup>	8.3 <sup>b</sup>
Copper	mg/kg	27	41	15	17	26	50	27	54
Iron	mg/kg	19000 <sup>b</sup>	21000 <sup>b</sup>	19000 <sup>b</sup>	23000 <sup>b</sup>	18000 <sup>b</sup>	20000 <sup>b</sup>	18000 <sup>b</sup>	21000 <sup>b</sup>
Lead	mg/kg	31	64	27	26	30	75	32	77
Magnesium	mg/kg	25000	23000	12000	8900	24000	22000	24000	22000
Manganese	mg/kg	580 <sup>b</sup>	560 <sup>b</sup>	1000 <sup>b</sup>	1000 <sup>b</sup>	550 <sup>b</sup>	570 <sup>b</sup>	560 <sup>b</sup>	620 <sup>b</sup>
Mercury	mg/kg	0.11 J	0.16	0.043 J	0.041 J	0.078 J	0.26	0.11 J	0.19
Nickel	mg/kg	21	27	17	19	20	29	20	30
Potassium	mg/kg	1600	1500	1200	1300	1400	1400	1500	1600
Selenium	mg/kg	0.73 J	0.74 J	0.55 J	0.50 J	0.70 J	0.72 J	0.76 J	0.83 J
Silver	mg/kg	0.29	0.86	0.060 J	0.063 J	0.29	1.0	0.33	1.2
Sodium	mg/kg	100 J	100 J	61 J	59 U	98 J	95 J	98 J	95 J
Thallium	mg/kg	0.32 <sup>b</sup>	0.37 <sup>b</sup>	0.19 J <sup>b</sup>	0.20 J <sup>b</sup>	0.29 <sup>b</sup>	0.36 <sup>b</sup>	0.31 <sup>b</sup>	0.40 <sup>b</sup>
Vanadium	mg/kg	24	26	25	30	21	25	22	27
Zinc	mg/kg	110	140	60	67	100	150	100	150

Table 5

**Summary of Detections - Comparison to RSLs**  
**Floodplain Soil Samples - Upstream**  
**South Dayton Dump and Landfill Site**  
**Moraine, Ohio**

Sample Location:	SS-205	SS-205	SS-206	SS-206	SS-207	SS-207	SS-208	SS-208	SS-208
Sample ID:	SS-38443-121018-JC-205	SS-38443-121018-JC-222	SS-38443-121018-JC-206	SS-38443-121018-JC-223	SS-38443-121018-JC-207	SS-38443-121018-JC-224	SS-38443-121018-JC-208	SS-38443-121018-JC-225	SS-38443-121018-JC-199
Sample Date:	12/10/2018	12/10/2018	12/10/2018	12/10/2018	12/10/2018	12/10/2018	12/10/2018	12/10/2018	12/10/2018
Sample Depth:	0-0.5 ft BGS	0.5-2 ft BGS	0.5-2 ft BGS						

Parameters	Units	SS-205	SS-205	SS-206	SS-206	SS-207	SS-207	SS-208	SS-208	SS-208	SS-208
<b>PCBs</b>											
Aroclor-1254 (PCB-1254)	µg/kg	160 J <sup>b</sup>	3300 <sup>ab</sup>			28 U	29 U	110	1500 <sup>ab</sup>	140 J <sup>b</sup>	1500 J <sup>ab</sup>
<b>Pesticides</b>											
4,4'-DDD	µg/kg	10 U	19 U	1.8 U	1.9 U	9.8 U	9.2 U	10 U	9.7 U	19 U	
4,4'-DDE	µg/kg	11 U	19 U	1.9 U	1.9 U	10 U	9.4 U	10 U	9.9 U	19 U	
4,4'-DDT	µg/kg	7.9 U	14 U	1.4 U	1.4 U	7.5 U	7.1 U	7.7 U	7.4 U	14 U	
Endrin aldehyde	µg/kg	9.2 U	17 U	1.6 U	1.6 U	8.6 U	8.2 U	9.0 U	8.6 U	17 U	
<b>Herbicides</b>											
<b>General Chemistry</b>											
Cyanide (total)	mg/kg	0.29 U	0.26 J	0.23 U	0.26 U	0.27 U	0.22 U	0.27 J	0.26 U	0.25 U	

## Notes

- J - Estimated concentration.  
NJ - Tentatively identified compound, estimated concentration.  
R - Rejected.  
U - Not detected at the associated reporting limit.  
UJ - Not detected; associated reporting limit is estimated.

Table 6

**Summary of Detections - Comparison to ESVs**  
**Floodplain Soil Samples - Upstream**  
**South Dayton Dump and Landfill Site**  
**Moraine, Ohio**

Sample Location:  
 Sample ID:  
 Sample Date:  
 Sample Depth:

SS-201 SS-38443-121018-JC-201 12/10/2018 0-0.5 ft BGS	SS-201 SS-38443-121018-JC-218 12/10/2018 0.5-2 ft BGS	SS-202 SS-38443-121018-JC-202 12/10/2018 0-0.5 ft BGS	SS-202 SS-38443-121018-JC-219 12/10/2018 0.5-2 ft BGS	SS-203 SS-38443-121018-JC-203 12/10/2018 0-0.5 ft BGS	SS-203 SS-38443-121018-JC-220 12/10/2018 0.5-2 ft BGS	SS-203 SS-38443-121018-JC-221 12/10/2018 0-0.5 ft BGS	SS-204 SS-38443-121018-JC-204 12/10/2018 0.5-2 ft BGS	SS-204 SS-38443-121018-JC-222 12/10/2018 0.5-2 ft BGS
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## Parameters

	Units	Detects	Soil Ecological Screening Levels	Sediment Freshwater Ecological Screening Value	Sediment Freshwater Ecological Screening Value (Wildlife Based)	a	b	c	SS-201 SS-38443-121018-JC-201 12/10/2018 0-0.5 ft BGS	SS-201 SS-38443-121018-JC-218 12/10/2018 0.5-2 ft BGS	SS-202 SS-38443-121018-JC-202 12/10/2018 0-0.5 ft BGS	SS-202 SS-38443-121018-JC-219 12/10/2018 0.5-2 ft BGS	SS-203 SS-38443-121018-JC-203 12/10/2018 0-0.5 ft BGS	SS-203 SS-38443-121018-JC-220 12/10/2018 0.5-2 ft BGS	SS-204 SS-38443-121018-JC-204 12/10/2018 0.5-2 ft BGS	SS-204 SS-38443-121018-JC-222 12/10/2018 0.5-2 ft BGS
<b>Volatiles</b>																
<b>Semi-Volatiles</b>																
2-Methylnaphthalene	µg/kg	17	-	20.2	-	7.9 J	15 J	16 J	27 <sup>b</sup>	10 J	16 J	9.6 J	12 J			
Acenaphthene	µg/kg	14	-	6.7	-	22 <sup>b</sup>	38 <sup>b</sup>	19 J <sup>b</sup>	29 <sup>b</sup>	14 J <sup>b</sup>	14 J <sup>b</sup>	9.6 J <sup>b</sup>	13 J <sup>b</sup>			
Acenaphthylene	µg/kg	18	-	5.9	-	16 J <sup>b</sup>	23 <sup>b</sup>	36 <sup>b</sup>	48 <sup>b</sup>	25 <sup>b</sup>	28 <sup>b</sup>	25 <sup>b</sup>	27 <sup>b</sup>			
Anthracene	µg/kg	18	-	57	-	71 <sup>b</sup>	130 <sup>b</sup>	65 <sup>b</sup>	79 <sup>b</sup>	40	39	36	36			
Benzaldehyde	µg/kg	3	-	59	-	26 U	26 U	34 J	29 U	31 U	30 U	30 U	30 U			
Benzo(a)anthracene	µg/kg	18	-	108	-	280 <sup>b</sup>	500 <sup>b</sup>	420 <sup>b</sup>	440 <sup>b</sup>	270 <sup>b</sup>	280 <sup>b</sup>	270 <sup>b</sup>	260 <sup>b</sup>			
Benzo(a)pyrene	µg/kg	18	-	150	-	280 <sup>b</sup>	490 <sup>b</sup>	540 <sup>b</sup>	540 <sup>b</sup>	350 <sup>b</sup>	330 <sup>b</sup>	310 <sup>b</sup>	300 <sup>b</sup>			
Benzo(b)fluoranthene	µg/kg	18	-	190	-	480 <sup>b</sup>	720 <sup>b</sup>	990 <sup>b</sup>	880 <sup>b</sup>	540 <sup>b</sup>	560 <sup>b</sup>	510 <sup>b</sup>	500 <sup>b</sup>			
Benzo(g,h,i)perylene	µg/kg	18	-	170	-	190 <sup>b</sup>	350 <sup>b</sup>	300 <sup>b</sup>	300 <sup>b</sup>	270 <sup>b</sup>	310 <sup>b</sup>	240 <sup>b</sup>	220 <sup>b</sup>			
Benzo(k)fluoranthene	µg/kg	18	-	240	-	170	340 <sup>b</sup>	380 <sup>b</sup>	380 <sup>b</sup>	180	140	190	160			
bis(2-Ethylhexyl)phthalate (DEHP)	µg/kg	15	20	180	-	240 <sup>ab</sup>	93 U	160 <sup>a</sup>	140 <sup>a</sup>	84 J <sup>a</sup>	150 <sup>a</sup>	78 J <sup>a</sup>	93 <sup>a</sup>			
Butyl benzylphthalate (BBP)	µg/kg	2	590	100	-	25 U	25 U	29 U	28 U	29 U	28 U	29 U	30 J			
Carbazole	µg/kg	16	70	69	-	39 J	84 <sup>ab</sup>	57 J	54 J	33 J	29 J	30 J	31 J			
Chrysene	µg/kg	18	-	166	-	330 <sup>b</sup>	590 <sup>b</sup>	600 <sup>b</sup>	560 <sup>b</sup>	400 <sup>b</sup>	360 <sup>b</sup>	360 <sup>b</sup>	340 <sup>b</sup>			
Dibenz(a,h)anthracene	µg/kg	14	-	33	-	7.9 U	7.8 U	9.0 U	8.7 U	66 <sup>b</sup>	58 <sup>b</sup>	64 <sup>b</sup>	68 <sup>b</sup>			
Dibenzofuran	µg/kg	4	150	510	-	15 U	22 J	22 J	16 J	17 U	17 U	17 U	17 U			
Di-n-butylphthalate (DBP)	µg/kg	6	11	11	-	25 U	25 U	29 U	28 U	29 U	28 J <sup>ab</sup>	29 U	28 J <sup>ab</sup>			
Fluoranthene	µg/kg	18	-	423	-	760 <sup>b</sup>	1300 <sup>b</sup>	1300 <sup>b</sup>	1100 <sup>b</sup>	640 <sup>b</sup>	560 <sup>b</sup>	570 <sup>b</sup>	550 <sup>b</sup>			
Fluorene	µg/kg	15	-	77	-	21	37	20	26	12 J	14 J	10 J	12 J			
Indeno(1,2,3-cd)pyrene	µg/kg	18	-	200	-	170	290 <sup>b</sup>	270 <sup>b</sup>	270 <sup>b</sup>	240 <sup>b</sup>	250 <sup>b</sup>	220 <sup>b</sup>	200			
Naphthalene	µg/kg	15	-	176	-	2.8 U	11 J	16 J	22	11 J	16 J	9.3 J	11 J			
Phenanthrene	µg/kg	18	-	204	-	340 <sup>b</sup>	610 <sup>b</sup>	350 <sup>b</sup>	400 <sup>b</sup>	210 <sup>b</sup>	200	190	190			
Pyrene	µg/kg	18	-	195	-	490 <sup>b</sup>	820 <sup>b</sup>	780 <sup>b</sup>	630 <sup>b</sup>	480 <sup>b</sup>	470 <sup>b</sup>	480 <sup>b</sup>	460 <sup>b</sup>			
<b>Metals</b>																
Aluminum	mg/kg	18	-	25000	-	6400	7200	9600	11000	9800	11000	10000	12000			
Antimony	mg/kg	18	0.27	2	-	0.19 J	0.21 J	0.26 J	0.29 J <sup>a</sup>	0.26 J	0.31 J <sup>a</sup>	0.25 J	0.31 J <sup>a</sup>			
Arsenic	mg/kg	18	18	9.8	-	6.7	7.1	8.2	9.5	8.6	10 <sup>b</sup>	8.5	9.8			
Barium	mg/kg	18	330	20	-	73 <sup>b</sup>	75 <sup>b</sup>	130 <sup>b</sup>	140 <sup>b</sup>	130 <sup>b</sup>	150 <sup>b</sup>	130 <sup>b</sup>	150 <sup>b</sup>			
Beryllium	mg/kg	18	2.5	-	-	0.32	0.37	0.51	0.57	0.51	0.74	0.51	0.61			
Cadmium	mg/kg	18	0.36	1	-	0.45 <sup>a</sup>	0.52 <sup>a</sup>	0.70 <sup>a</sup>	1.4 <sup>ab</sup>	0.69 <sup>a</sup>	1.7 <sup>ab</sup>	0.64 <sup>a</sup>	1.0 <sup>a</sup>			
Calcium	mg/kg	18	-	-	-	82000	74000	63000	59000	66000	57000	65000	58000			
Chromium	mg/kg	18	23	43.4	-	15	16	20	37 <sup>a</sup>	21	40 <sup>a</sup>	20	28 <sup>a</sup>			
Cobalt	mg/kg	18	13	50	-	5.0	5.1	7.1	7.9	7.4	8.4	7.4	8.3			
Copper	mg/kg	18	28	31.6	-	20	21	27	39 <sup>ab</sup>	27	44 <sup>ab</sup>	26	33 <sup>ab</sup>			
Iron	mg/kg	18	-	20000	-	13000	14000	19000	20000	19000	21000 <sup>b</sup>	19000	22000 <sup>b</sup>			
Lead	mg/kg	18	11	35.8	-	29 <sup>a</sup>	39 <sup>ab</sup>	34 <sup>a</sup>	73 <sup>ab</sup>	34 <sup>a</sup>	75 <sup>ab</sup>	32 <sup>a</sup>	47 <sup>ab</sup>			
Magnesium	mg/kg	18	-	-	-	31000	32000	22000	22000	24000	22000	24000	21000			
Manganese	mg/kg	18	220</													

Table 6

**Summary of Detections - Comparison to ESVs**  
**Floodplain Soil Samples - Upstream**  
**South Dayton Dump and Landfill Site**  
**Moraine, Ohio**

Sample Location:  
 Sample ID:  
 Sample Date:  
 Sample Depth:

SS-201 SS-38443-121018-JC-201	SS-201 SS-38443-121018-JC-218	SS-202 SS-38443-121018-JC-202	SS-202 SS-38443-121018-JC-219	SS-203 SS-38443-121018-JC-203	SS-203 SS-38443-121018-JC-220	SS-204 SS-38443-121018-JC-204	SS-204 SS-38443-121018-JC-221
12/10/2018 0-0.5 ft BGS	12/10/2018 0.5-2 ft BGS						

Parameters	Units	Detects	Soil Ecological Screening Levels	Sediment Freshwater Ecological Screening Value	Sediment Freshwater Ecological Screening Value (Wildlife Based)	SS-201 SS-38443-121018-JC-201	SS-201 SS-38443-121018-JC-218	SS-202 SS-38443-121018-JC-202	SS-202 SS-38443-121018-JC-219	SS-203 SS-38443-121018-JC-203	SS-203 SS-38443-121018-JC-220	SS-204 SS-38443-121018-JC-204	SS-204 SS-38443-121018-JC-221	
				a	b									
<b>Pesticides</b>														
4,4'-DDD	µg/kg	1	-	3.5	-	1.7 U	1.7 U	9.6 U	9.4 U	1.9 U	1.9 U	<b>4.1 NJ<sup>b</sup></b>	9.6 U	
4,4'-DDE	µg/kg	2	-	1.4	-	1.8 U	<b>2.0 J<sup>b</sup></b>	9.8 U	9.6 U	<b>4.5 J<sup>b</sup></b>	1.9 U	2.0 U	9.8 U	
4,4'-DDT	µg/kg	4	-	1.0	-	<b>2.0 J<sup>b</sup></b>	<b>1.9 NJ<sup>b</sup></b>	7.3 U	7.2 U	<b>3.6 NJ<sup>b</sup></b>	1.4 U	<b>2.7 NJ<sup>b</sup></b>	7.3 U	
Endrin aldehyde	µg/kg	1	-	-	-	1.5 U	1.5 U	8.5 U	8.3 U	1.7 U	2.0 NJ	1.7 U	8.5 U	
<b>Herbicides</b>														
<b>General Chemistry</b>														
Cyanide (total)	mg/kg	3	0.1	-	-	0.24 U	0.20 U	0.26 U	0.24 U	0.23 U	0.23 U	<b>0.29 J<sup>a</sup></b>	0.22 U	

## Notes

J - Estimated concentration.  
 NJ - Tentatively identified compound, estimated concentration.  
 R - Rejected.  
 U - Not detected at the associated reporting limit.  
 UJ - Not detected; associated reporting limit is estimated.

Table 6

**Summary of Detections - Comparison to ESVs**  
**Floodplain Soil Samples - Upstream**  
**South Dayton Dump and Landfill Site**  
**Moraine, Ohio**

Sample Location:	SS-204	SS-205	SS-205	SS-206	SS-206	SS-207	SS-207	SS-208	SS-208	SS-208	SS-208
Sample ID:	SS-38443-121018-JC-200	SS-38443-121018-JC-205	SS-38443-121018-JC-222	SS-38443-121018-JC-206	SS-38443-121018-JC-223	SS-38443-121018-JC-207	SS-38443-121018-JC-224	SS-38443-121018-JC-208	SS-38443-121018-JC-225	SS-38443-121018-JC-199	
Sample Date:	12/10/2018	12/10/2018	12/10/2018	12/10/2018	12/10/2018	12/10/2018	12/10/2018	12/10/2018	12/10/2018	12/10/2018	12/10/2018
Sample Depth:	0.5-2 ft BGS	0-0.5 ft BGS	0.5-2 ft BGS	0.5-2 ft BGS	0.5-2 ft BGS						
Duplicate											Duplicate
Parameters	Units										
<b>Volatiles</b>											
<b>Semi-Volatiles</b>											
2-Methylnaphthalene	µg/kg	14 J	11 J	16 J	4.3 J	2.4 U	10 J	22 <sup>b</sup>	13 J	25 <sup>b</sup>	11 J
Acenaphthene	µg/kg	14 J <sup>b</sup>	14 J <sup>b</sup>	15 J <sup>b</sup>	3.6 U	3.6 U	15 J <sup>b</sup>	18 J <sup>b</sup>	14 J <sup>b</sup>	3.7 U	3.7 U
Acenaphthylene	µg/kg	36 <sup>b</sup>	26 <sup>b</sup>	28 <sup>b</sup>	6.8 J <sup>b</sup>	6.2 J <sup>b</sup>	32 <sup>b</sup>	63 <sup>b</sup>	23 <sup>b</sup>	47 <sup>b</sup>	37 <sup>b</sup>
Anthracene	µg/kg	41	44	42	7.7 J	6.9 J	49	68 <sup>b</sup>	44	52	40
Benzaldehyde	µg/kg	30 U	85 J <sup>b</sup>	29 U	29 U	29 U	46 J	29 U	31 U	30 U	30 U
Benzo(a)anthracene	µg/kg	290 <sup>b</sup>	330 <sup>b</sup>	290 <sup>b</sup>	52	53	370 <sup>b</sup>	470 <sup>b</sup>	300 <sup>b</sup>	430 <sup>b</sup>	290 <sup>b</sup>
Benzo(a)pyrene	µg/kg	340 <sup>b</sup>	390 <sup>b</sup>	320 <sup>b</sup>	63	67	440 <sup>b</sup>	510 <sup>b</sup>	320 <sup>b</sup>	460 <sup>b</sup>	290 <sup>b</sup>
Benzo(b)fluoranthene	µg/kg	560 <sup>b</sup>	620 <sup>b</sup>	510 <sup>b</sup>	110	110	740 <sup>b</sup>	840 <sup>b</sup>	590 <sup>b</sup>	810 <sup>b</sup>	510 <sup>b</sup>
Benzo(g,h,i)perylene	µg/kg	260 <sup>b</sup>	310 <sup>b</sup>	240 <sup>b</sup>	54	59	360 <sup>b</sup>	380 <sup>b</sup>	300 <sup>b</sup>	390 <sup>b</sup>	270 <sup>b</sup>
Benzo(k)fluoranthene	µg/kg	180	240	200	30	36	260 <sup>b</sup>	290 <sup>b</sup>	190	260 <sup>b</sup>	190
bis(2-Ethylhexyl)phthalate (DEHP)	µg/kg	96 <sup>a</sup>	80 J <sup>a</sup>	100 <sup>a</sup>	88 <sup>a</sup>	64 U	76 J <sup>a</sup>	120 <sup>a</sup>	68 U	130 <sup>a</sup>	98 <sup>a</sup>
Butyl benzylphthalate (BBP)	µg/kg	29 U	31 U	38 J	28 U	27 U	29 U	28 U	30 U	29 U	28 U
Carbazole	µg/kg	35 J	41 J	34 J	24 U	24 U	42 J	42 J	33 J	48 J	33 J
Chrysene	µg/kg	370 <sup>b</sup>	450 <sup>b</sup>	350 <sup>b</sup>	71	76	520 <sup>b</sup>	560 <sup>b</sup>	410 <sup>b</sup>	490 <sup>b</sup>	370 <sup>b</sup>
Dibenz(a,h)anthracene	µg/kg	76 <sup>b</sup>	82 <sup>b</sup>	66 <sup>b</sup>	20	20	95 <sup>b</sup>	110 <sup>b</sup>	70 <sup>b</sup>	110 <sup>b</sup>	64 <sup>b</sup>
Dibenzofuran	µg/kg	17 U	18 U	17 U	16 U	16 U	17 U	16 U	17 U	21 J	17 U
Di-n-butylphthalate (DBP)	µg/kg	29 U	31 U	30 J <sup>ab</sup>	28 J <sup>ab</sup>	27 U	30 J <sup>ab</sup>	29 J <sup>ab</sup>	30 U	29 U	28 U
Fluoranthene	µg/kg	590 <sup>b</sup>	770 <sup>b</sup>	540 <sup>b</sup>	120	150	890 <sup>b</sup>	810 <sup>b</sup>	640 <sup>b</sup>	690 <sup>b</sup>	560 <sup>b</sup>
Fluorene	µg/kg	14 J	15 J	15 J	3.4 U	3.4 U	16 J	18 J	3.7 U	21	16 J
Indeno(1,2,3-cd)pyrene	µg/kg	250 <sup>b</sup>	280 <sup>b</sup>	220 <sup>b</sup>	48	54	350 <sup>b</sup>	350 <sup>b</sup>	210 <sup>b</sup>	340 <sup>b</sup>	220 <sup>b</sup>
Naphthalene	µg/kg	11 J	9.3 J	13 J	3.0 U	3.0 U	12 J	18 J	8.9 J	21	10 J
Phenanthrene	µg/kg	200	260 <sup>b</sup>	230 <sup>b</sup>	43	53	280 <sup>b</sup>	260 <sup>b</sup>	230 <sup>b</sup>	340 <sup>b</sup>	230 <sup>b</sup>
Pyrene	µg/kg	520 <sup>b</sup>	630 <sup>b</sup>	510 <sup>b</sup>	98	140	730 <sup>b</sup>	780 <sup>b</sup>	620 <sup>b</sup>	730 <sup>b</sup>	570 <sup>b</sup>
<b>Metals</b>											
Aluminum	mg/kg	12000	10000	11000	11000	13000	9000	11000	9200	12000	12000
Antimony	mg/kg	0.30 J <sup>a</sup>	0.27 J	0.31 J <sup>a</sup>	0.19 J	0.22 J	0.31 J <sup>a</sup>	0.29 J <sup>a</sup>	0.27 J	0.35 J <sup>a</sup>	0.31 J <sup>a</sup>
Arsenic	mg/kg	10 <sup>b</sup>	8.3	9.8	7.6	9.7	8.1	9.9 <sup>b</sup>	8.3	10 <sup>b</sup>	9.9 <sup>b</sup>
Barium	mg/kg	150 <sup>b</sup>	130 <sup>b</sup>	140 <sup>b</sup>	150 <sup>b</sup>	140 <sup>b</sup>	130 <sup>b</sup>	150 <sup>b</sup>	130 <sup>b</sup>	150 <sup>b</sup>	140 <sup>b</sup>
Beryllium	mg/kg	0.63	0.54	0.62	0.65	0.77	0.51	0.64	0.59	0.77	0.68
Cadmium	mg/kg	1.1 <sup>ab</sup>	0.66 <sup>a</sup>	1.5 <sup>ab</sup>	0.33	0.35	0.63 <sup>a</sup>	1.9 <sup>ab</sup>	0.69 <sup>a</sup>	2.0 <sup>ab</sup>	1.2 <sup>ab</sup>
Calcium	mg/kg	57000	69000	62000	31000	20000	69000	61000	68000	58000	58000
Chromium	mg/kg	30 <sup>a</sup>	20	36 <sup>a</sup>	15	18	19	44 <sup>ab</sup>	20	45 <sup>ab</sup>	31 <sup>a</sup>
Cobalt	mg/kg	8.5	7.3	8.0	13	12	7.0	8.1	7.1	8.3	8.4
Copper	mg/kg	34 <sup>ab</sup>	27	41 <sup>ab</sup>	15	17	26	50 <sup>ab</sup>	27	54 <sup>ab</sup>	39 <sup>ab</sup>
Iron	mg/kg	22000 <sup>b</sup>	19000	21000 <sup>b</sup>	19000	23000 <sup>b</sup>	18000	20000	18000	21000 <sup>b</sup>	21000 <sup>b</sup>
Lead	mg/kg	52 <sup>ab</sup>	31 <sup>a</sup>	64 <sup>ab</sup>	27 <sup>a</sup>	26 <sup>a</sup>	30 <sup>a</sup>	75 <sup>ab</sup>	32 <sup>a</sup>	77 <sup>ab</sup>	52 <sup>ab</sup>
Magnesium	mg/kg	21000	25000	23000	12000	8900	24000	22000	24000	22000	22000
Manganese	mg/kg	590 <sup>ab</sup>	580 <sup>ab</sup>	560 <sup>ab</sup>	1000 <sup>ab</sup>	1000 <sup>ab</sup>	550 <sup>ab</sup>	570 <sup>ab</sup>	560 <sup>ab</sup>	560 <sup>ab</sup>	620 <sup>ab</sup>
Mercury	mg/kg	0.12 J <sup>a</sup>	0.11 J <sup>a</sup>	0.16 <sup>a</sup>	0.043 J <sup>a</sup>	0.041 J <sup>a</sup>	0.078 J <sup>a</sup>	0.26 <sup>abc</sup>	0.11 J <sup>a</sup>	0.19 <sup>abc</sup>	0.15 <sup>a</sup>
Nickel	mg/kg	28 <sup>b</sup>	21	27 <sup>b</sup>	17	19	20	29 <sup>b</sup>	20	30 <sup>b</sup>	27 <sup>b</sup>
Potassium	mg/kg	1500	1600	1500	1200	1300	1400	1400	1500	1600	1600
Selenium	mg/kg	0.76 J <sup>ab</sup>	0.73 J <sup>ab</sup>	0.74 J <sup>ab</sup>	0.55 J <sup>a</sup>	0.50 J	0.70 J <sup>a</sup>	0.72 J <sup>a</sup>	0.76 J <sup>ab</sup>	0.83 J <sup>abc</sup>	0.78 J <sup>ab</sup>
Silver	mg/kg	0.70	0.29	0.86	0.060 J	0.063 J	0.29	1.0	0.33	1.2 <sup>b</sup>	0.71
Sodium	mg/kg	100 J	100 J	100 J	61 J	59 U	98 J	95 J	98 J	95 J	91 J
Thallium	mg/kg	0.38 <sup>a</sup>	0.32 <sup>a</sup>	0.37 <sup>a</sup>	0.19 J <sup>a</sup>	0.20 J <sup>a</sup>	0.29 <sup>a</sup>	0.36 <sup>a</sup>	0.31 <sup>a</sup>	0.40 <sup>a</sup>	0.38 <sup>a</sup>
Vanadium	mg/kg	27 <sup>a</sup>	24 <sup>a</sup>	26 <sup>a</sup>	25 <sup>a</sup>	30 <sup>a</sup>	21 <sup>a</sup>	25 <sup>a</sup>	22 <sup>a</sup>	27 <sup>a</sup>	26 <sup>a</sup>
Zinc	mg/kg	130 <sup>ab</sup>	1								

Table 6

**Summary of Detections - Comparison to ESVs**  
**Floodplain Soil Samples - Upstream**  
**South Dayton Dump and Landfill Site**  
**Moraine, Ohio**

Sample Location:	SS-204	SS-205	SS-205	SS-206	SS-206	SS-207	SS-207	SS-208	SS-208	SS-208	SS-208
Sample ID:	SS-38443-121018-JC-200	SS-38443-121018-JC-205	SS-38443-121018-JC-222	SS-38443-121018-JC-206	SS-38443-121018-JC-223	SS-38443-121018-JC-207	SS-38443-121018-JC-224	SS-38443-121018-JC-208	SS-38443-121018-JC-225	SS-38443-121018-JC-199	
Sample Date:	12/10/2018	12/10/2018	12/10/2018	12/10/2018	12/10/2018	12/10/2018	12/10/2018	12/10/2018	12/10/2018	12/10/2018	
Sample Depth:	0.5-2 ft BGS	0-0.5 ft BGS	0.5-2 ft BGS	0.5-2 ft BGS							
	Duplicate									Duplicate	

Parameters	Units	SS-204	SS-205	SS-205	SS-206	SS-206	SS-207	SS-207	SS-208	SS-208	SS-208
<b>Pesticides</b>											
4,4'-DDD	µg/kg	9.3 U	10 U	19 U	1.8 U	1.9 U	9.8 U	9.2 U	10 U	9.7 U	19 U
4,4'-DDE	µg/kg	9.5 U	11 U	19 U	1.9 U	1.9 U	10 U	9.4 U	10 U	9.9 U	19 U
4,4'-DDT	µg/kg	7.1 U	7.9 U	14 U	1.4 U	1.4 U	7.5 U	7.1 U	7.7 U	7.4 U	14 U
Endrin aldehyde	µg/kg	8.2 U	9.2 U	17 U	1.6 U	1.6 U	8.6 U	8.2 U	9.0 U	8.6 U	17 U
<b>Herbicides</b>											
<b>General Chemistry</b>											
Cyanide (total)	mg/kg	0.23 U	0.29 U	0.26 J <sup>a</sup>	0.23 U	0.26 U	0.27 U	0.22 U	0.27 J <sup>a</sup>	0.26 U	0.25 U

## Notes

J - Estimated concentration.

NJ - Tentatively identified compound, estimated concentration.

R - Rejected.

U - Not detected at the associated reporting limit.

UJ - Not detected; associated reporting limit is estimated.

## **Attachment A**



# Memorandum

January 2, 2020

To: Julian Hayward  
*BB*  
Ref. No.: 038443-320

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From: Angela Bown/cs/58-NF  
Tel: 513-285-1102

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CC: Brent Ramdial, Valerie Chan

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**Subject:** Analytical Results and Full/Innovative Validation  
Floodplain Soil Sampling  
ITW Corporate-South Dayton Dump and Landfill  
Moraine, Ohio  
November 2019

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## 1. Introduction

This document details a validation of analytical results for soil samples collected in support of the Floodplain Soil Sampling event at the Moraine, Ohio site during November 2019. Samples were submitted to Eurofins TestAmerica, Canton (TA) located in North Canton, Ohio. A sample collection and analysis summary is presented in Table 1. The validated analytical results are summarized in Table 2A. Rinse blank results are summarized in Table 2B for informational purposes, only. A summary of the analytical methodology is presented in Table 3.

Full Contract Laboratory Program (CLP) equivalent raw data deliverables were provided by the laboratory. Evaluation of the data was based on information obtained from the finished data sheets, raw data, chain of custody forms, calibration data, blank data, duplicate data, recovery data from surrogate spikes/laboratory control samples (LCS)/matrix spike (MS) samples and field quality assurance/quality (QA/QC) samples. The assessment of analytical and in-house data included checks for data consistency (by observing comparability of duplicate analyses), adherence to accuracy and precision criteria, and transmittal errors.

The QA/QC criteria by which these data have been assessed are outlined in the analytical methods referenced in Table 3 and applicable guidance from the documents entitled:

- i) "Remedial Investigation/Feasibility Study (RI/FS) Work Plan for Operable Units 1 and 2, Appendix E-Quality Assurance Project Plan", September 20, 2017
- ii) "USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review", USEPA 540-R-10-011, January 2010
- iii) "USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review", USEPA 540-R-08-01, June 2008



Items ii) and iii) will subsequently be referred to as the "Guidelines" in this Memorandum.

## **2. Sample Holding Time and Preservation**

The sample holding time criteria for the analyses are summarized in Table 3. Sample chain of custody documents and analytical reports were used to determine sample holding times. All samples were prepared and analyzed within the required holding times.

All samples were properly preserved, delivered on ice, and stored by the laboratory at the required temperature (0-6°C).

## **3. Gas Chromatography/Mass Spectrometer (GC/MS) and Inductively Coupled Plasma/Mass Spectrometer (ICP/MS) – Tuning and Mass Calibration (Instrument Performance Check)**

### **3.1 Organic Analyses**

Prior to semi-volatile organic compound (SVOC) analysis, the GC/MS instrumentation is tuned to ensure optimization over the mass range of interest. To evaluate instrument tuning, the method requires the analysis of the specific tuning compound, decafluorotriphenylphosphine (DFTPP). The resulting spectra must meet the criteria cited in the method before analysis is initiated. Analysis of the tuning compound must then be repeated every 12 hours throughout sample analysis to ensure the continued optimization of the instrument.

The tuning compound was analyzed at the required frequency throughout SVOC analysis period. All tuning criteria were met indicating that proper optimization of the instrumentation was achieved.

### **3.2 Inorganic Analyses**

To ensure adequate mass resolution, identification, and to some degree, sensitivity, the performance of each ICP/MS instrument used for metals analyses is checked prior to calibration and initiating an analysis sequence through the analysis of a tuning solution.

Instrument performance check data were reviewed. The tuning solution was analyzed at the required frequency throughout the analyses. The results of all instrument performance checks were within the method acceptance criteria, indicating that proper optimization of the instrumentation was achieved.

## **4. Initial Calibration - Organic Analyses**

### **4.1 GC/MS**

To quantify SVOCs of interest in samples, calibration of the GC/MS over a specific concentration range must be performed. Initially, a five-point calibration curve containing all compounds of interest is analyzed to characterize instrument response for each analyte over a specific concentration range. Linearity of the calibration curve and instrument sensitivity are evaluated against the following criteria:



- i) All relative response factors (RRFs) must be greater than or equal to 0.050 (greater than or equal to 0.010 for compounds that exhibit poor response)
- ii) The percent relative standard deviation (%RSD) values must not exceed 20.0 percent (40.0 percent for compounds that exhibit poor response) or a minimum coefficient of determination ( $R^2$ ) of 0.99, if linear and quadratic equation calibration curves are used

The initial calibration data for SVOCs were reviewed. All compounds met the above criteria for sensitivity and linearity.

## 4.2 GC

### 4.2.1 Internal Standard Calibration – Polychlorinated Biphenyls (PCBs)

In order to quantify organic compounds of interest by GC, calibration of the gas chromatograph over a specific concentration range must be performed. PCBs were calibrated with a dual column analysis using internal standardization. Five peaks, representing five congeners, were used for the analysis of each Aroclor with a separate curve fitted to the calibration data for each congener. Linearity of the calibration curves are evaluated against the following criteria:

- i) The percent relative standard deviation (%RSD) values for the response factors (RF) must not exceed 20.0 percent, or
- ii) A minimum correlation coefficient (R) of 0.995 or minimum coefficient of determination ( $R^2$ ) of 0.99 if linear or quadratic equation calibration curves are used

Retention time windows are also calculated from the initial calibration analyses. These windows are then used to identify all compounds of interest in subsequent analyses

All initial calibration standards were analyzed at the required frequencies. All retention time, peak resolution, and linearity criteria were satisfied as specified in the methods

## 5. Initial Calibration – Inorganic Analyses

Initial calibration of the instruments ensures that they are capable of producing satisfactory quantitative data at the beginning of a series of analyses. For ICP/MS analysis, a calibration blank and at least one standard must be analyzed at each wavelength to establish the analytical curve. For mercury atomic absorption (AA) analyses, a calibration blank and a minimum of five standards must be analyzed to establish the analytical curve, and resulting correlation coefficients (R) must be 0.995 or greater. For instrumental general chemistry analyses, a calibration blank and a minimum of five standards must be analyzed to establish the analytical curve, and resulting correlation coefficients (R) must be 0.995 or greater.

After the analyses of the calibration curves, an initial calibration verification (ICV) standard must be analyzed to verify the analytical accuracy of the calibration curves. All analyte recoveries from the analyses of the ICVs must be within the following control limits:



Analytical Method	Parameter	Control Limits
ICP/MS	Metals	90 - 110%
Cold Vapor AA	Mercury	80 - 120%
Instrumental General Chemistry	Hexavalent chromium, Total Organic Carbon, Black (Soot) Carbon	85 - 115% or laboratory acceptance criteria

Upon review of the data, it was determined that the calibration curves and ICVs were analyzed at the proper frequencies and that all of the above-specified criteria were met. The laboratory effectively demonstrated that the instrumentation used for metals and general chemistry analyses were properly calibrated prior to sample analysis.

## **6. Continuing Calibration - Organic Analyses**

### **6.1 GC/MS**

To ensure that instrument calibration for SVOC analyses is acceptable throughout the sample analysis period, continuing calibration standards must be analyzed and compared to the initial calibration curve every 12 hours.

The following criteria were employed to evaluate continuing calibration data:

- i) All RRF values must be greater than or equal to 0.050 (greater than or equal to 0.010 for compounds that exhibit poor response)
- ii) Percent difference (%D) values must not exceed 25.0 percent (40.0 percent for compounds that exhibit poor response)

Calibration standards were analyzed at the required frequency, and the results met the above criteria for instrument sensitivity and stability.

### **6.2 GC**

To ensure that the calibration of the instrument for organic analyses by GC is valid throughout the sample analysis period, continuing calibration standards are analyzed and evaluated on a regular basis. To evaluate the continued linearity of the calibration, %D values are calculated for each compound. As specified in the methods, all %D values should not exceed 15 percent. To ensure that compound retention times do not vary over the analysis period, all retention times for continuing calibration compounds must fall within the established retention time windows.

All continuing calibration standards were analyzed at the required frequency. All %D values and compound retention times met the above criteria indicating acceptable instrument calibration throughout the analysis period.



## **7. Continuing Calibration - Inorganic Analyses**

To ensure that instrument calibration is acceptable throughout the sample analysis period, continuing calibration verification (CCV) standards are analyzed on a regular basis. Each CCV is deemed acceptable if all analyte recoveries are within the control limits specified above for the ICVs. If some of the CCV analyte recoveries are outside the control limits, samples analyzed before and after the CCV, up until the previous and proceeding CCV analyses, are affected.

For this study, CCVs were analyzed at the proper frequency. All analyte recoveries reported for the CCVs were within the specified limits.

## **8. Laboratory Blank Analyses**

Method blanks are prepared from a purified matrix and analyzed with investigative samples to determine the existence and magnitude of sample contamination introduced during the analytical procedures. Additionally, initial and continuing calibration blanks (ICBs/CCBs) are routinely analyzed after each ICV/CCV for the inorganic parameters.

For this study, laboratory method blanks were analyzed at a minimum frequency of 1 per 20 investigative samples and/or 1 per analytical batch.

### **8.1 Organic Analyses**

All method blank results were non-detect indicating that laboratory contamination was not a factor for this event.

### **8.2 Inorganic Analyses**

ICBs, CCBs, and method blanks were reviewed. All results were either non-detect or were at a level that did not impact the associated sample results. Qualification of the sample data was not necessary on this basis.

## **9. Surrogate Spike Recoveries**

In accordance with the methods employed, all samples, blanks, and QC samples analyzed for organics are spiked with surrogate compounds prior to sample extraction and/or analysis. Surrogate recoveries provide a means to evaluate the effects of laboratory performance on individual sample matrices.

All samples submitted for SVOC and PCB determinations were spiked with the appropriate number of surrogate compounds prior to sample extraction and/or analysis.

Each individual surrogate compound is expected to meet the laboratory control limits with the exception of SVOC analyses. According to the "Guidelines" for SVOC analyses, up to one outlying surrogate in the base/neutral or acid fractions is acceptable as long as the recovery is at least 10 percent.

Surrogate recoveries were assessed against laboratory control limits. All surrogate recoveries were within the laboratory criteria.



## **10. Internal Standards (IS) Analyses**

IS data were evaluated for all SVOC, PCB, and ICP/MS metals sample analyses.

### **10.1 Organics Analyses**

To ensure that changes in the GC/MS and GC sensitivity and response do not affect sample analysis results IS compounds are added to each sample prior to analysis. All results are then calculated as a ratio of the IS responses.

The sample IS results were evaluated against the following criteria:

- i) The retention time of the IS must not vary more than  $\pm 30$  seconds from the associated calibration standard
- ii) IS area counts must not vary by more than a factor of two (-50 percent to +100 percent) from the associated calibration standard

All organic IS recoveries and retention times met the above criteria.

### **10.2 Inorganic Analyses**

IS elements were added to all samples prior to metals analysis by ICP/MS. Overall instrument stability and performance for metals analyses were monitored using the IS intensity data. IS recoveries were assessed using control limits of 60-125 percent.

All inorganic IS recoveries were within the acceptance limits.

## **11. Laboratory Control Sample Analyses**

LCS or LCS/laboratory control sample duplicates (LCSD) are prepared and analyzed as samples to assess the analytical efficiencies of the methods employed, independent of sample matrix effects. The relative percent difference (RPD) of the LCS/LCSD recoveries is used to evaluate analytical precision.

For this study, LCS or LCS/LCSD were analyzed at a minimum frequency of 1 per 20 investigative samples and/or 1 per analytical batch.

### **11.1 Organic Analyses**

The LCS or LCS/LCSD contained all compounds of interest (SVOCs) or the compounds specified in the method (PCBs). All LCS recoveries and RPDs were within the laboratory control limits demonstrating acceptable analytical accuracy and precision.

### **11.2 Inorganic Analyses**

The LCS or LCS/LCSD contained all analytes of interest. LCS recoveries were assessed per the "Guidelines". All LCS recoveries and RPDs were within the control limits demonstrating acceptable analytical accuracy and precision.



## **12. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analyses**

To evaluate the effects of sample matrices on the preparation process, measurement procedures, and accuracy of a particular analysis, samples are spiked with a known concentration of the analyte of concern and analyzed as MS/MSD samples. The RPD between the MS and MSD is used to assess analytical precision.

If the original sample concentration is significantly greater than the spike concentration, the recovery is not assessed.

If only the MS or MSD recovery was outside of control limits, no qualification of the data was performed based on the acceptable recovery of the companion spike and the acceptable RPD with the exception of any recoveries of <10 percent. All associated non-detect sample results were rejected and all positive results were qualified as estimated.

MS/MSD analyses were performed as specified in Table 1.

### **12.1 Organic Analyses**

The MS/MSD samples were spiked with all compounds of interest (SVOCs) or the compounds specified in the method (PCBs). Most percent recoveries and RPD values were within the laboratory control limits demonstrating acceptable analytical accuracy and precision. Table 4 presents the sample results that were qualified or rejected due to outlying MS/MSD recoveries and/or RPDs.

### **12.2 Inorganic Analyses**

The MS/MSD samples were spiked with the analytes of interest, and the results were evaluated using the "Guidelines". All percent recoveries and RPD values, if applicable, were within the control limits, demonstrating acceptable analytical accuracy and precision with the exception of the sample results that were qualified in Table 4.

## **13. Duplicate Sample Analyses – Inorganic Analyses**

Analytical precision is evaluated based on the analysis of laboratory duplicate samples. For this study, duplicate samples were prepared and analyzed by the laboratory as specified in Table 1. The duplicate results were evaluated per the "Guidelines".

All duplicate analyses performed were acceptable, demonstrating acceptable analytical precision.

## **14. ICP/MS Serial Dilution**

The serial dilution determines whether significant physical or chemical interferences exist due to sample matrix. A minimum of 1 per 20 investigative samples or at least 1 per analytical batch must be analyzed at a five-fold dilution. For samples with sufficient analyte concentrations (>50 times the method detection limit), the serial dilution results must agree within 10 percent of the original results.



A serial dilution was performed on each MS/MSD sample. All results met the criteria above.

## **15. ICP Interference Check Sample Analysis (ICS)**

To verify that the laboratory has established proper inter-element and background correction factors, ICSs are analyzed. These samples contain high concentrations of aluminum, calcium, magnesium, and iron and are analyzed at the beginning and end of each sample analysis period. The ICSs are evaluated against recovery control limits in the "Guidelines" of 80 to 120 percent.

ICS analysis results were evaluated for all samples using the criteria in the "Guidelines". All ICS recoveries and results were acceptable.

## **16. Field QA/QC Samples**

The field QA/QC consisted of two rinse blank samples and two field duplicate sample sets.

### **16.1 Rinse Blank Sample Analysis**

To assess field decontamination procedures, ambient conditions at the site, and cleanliness of sample containers, two rinse blank samples were submitted for analysis, as identified in Table 1. Most results were non-detect for the analytes of interest. Table 5 presents the sample results that were qualified as non-detect due to results that were similar to the rinse blank sample.

### **16.2 Field Duplicate Sample Analysis**

To assess the analytical and sampling protocol precision, two field duplicate sample sets were collected and submitted "blind" to the laboratory, as specified in Table 1. The RPDs associated with these duplicate samples must be less than 100 percent for soil samples. If the reported concentration in either the investigative sample or its duplicate is less than five times the reporting limit (RL), the evaluation criterion is two times the RL value for soil samples.

All field duplicate results were within acceptable agreement, demonstrating acceptable sampling and analytical precision.

## **17. Analyte Reporting**

The laboratory reported detected results down to the laboratory's method detection limit (MDL) for each analyte adjusted for specific sample dilutions, weights, and volumes. Positive analyte detections less than the RL but greater than the sample-specific MDL were qualified as estimated (J) in Table 2A unless qualified otherwise in this memorandum. Non-detect results were presented as non-detect at the sample specific MDL in Table 2A.

All soil results were reported on a dry weight basis.



## **18. Dual Column Reporting**

GC analyses were performed using dual column analyses. All results showed good correlation between the two columns (<40 RPD).

## **19. Target Compound Identification**

To minimize erroneous compound identification during organic analyses, qualitative criteria including compound retention time and mass spectra (if applicable) were evaluated according to the identification criteria established by the methods. The samples identified in Table 1 were reviewed. The organic compounds reported adhered to the specified identification criteria.

## **20. Conclusion**

Based on the assessment detailed in the foregoing, the data summarized in Table 2A are acceptable with the specific exceptions and qualifications noted herein.

Table 1

**Sample Collection and Analysis Summary**  
**Floodplain Soil Sampling**  
**ITW Corporate-South Dayton Dump and Landfill**  
**Moraine, Ohio**  
**November 2019**

Sample Identification	Location	Start Depth (ft bgs)	End Depth (ft bgs)	Matrix	Collection Date (mm/dd/yyyy)	Collection Time (hr:min)	Analysis/Parameters							Comments
							SVOCs	PCBs	Select Metals	Mercury	Total Organic Carbon	Black (Soot) Carbon	Hexavalent & Trivalent Cr	
RB-38443-111419-GL-001	-	-	-	Water	11/14/2019	11:19	X	X	X	X	X			Equipment Blank
RB-38443-111419-GL-002	-	-	-	Water	11/14/2019	13:37	X	X	X	X	X			Equipment Blank
SS-38443-111419-GL-001	SS-178	0	0.5	Soil	11/14/2019	09:45	X	X	X	X	X	X	X	DUP
SS-38443-111419-GL-002	SS-178	0.5	2	Soil	11/14/2019	10:00	X	X	X	X	X	X	X	
SS-38443-111419-GL-003	SS-179	0	0.5	Soil	11/14/2019	10:12	X	X	X	X	X	X	X	MS/MSD
SS-38443-111419-GL-004	SS-179	0.5	2	Soil	11/14/2019	10:18	X	X	X	X	X	X	X	
SS-38443-111419-GL-005	SS-181	0	0.5	Soil	11/14/2019	10:37	X	X	X	X	X	X	X	
SS-38443-111419-GL-006	SS-181	0.5	2	Soil	11/14/2019	10:48	X	X	X	X	X	X	X	
SS-38443-111419-GL-007	SS-182	0	0.5	Soil	11/14/2019	11:03	X	X	X	X	X	X	X	
SS-38443-111419-GL-008	SS-182	0.5	2	Soil	11/14/2019	11:07	X	X	X	X	X	X	X	
SS-38443-111419-GL-009	SS-182	0.5	2	Soil	11/14/2019	11:10	X	X	X	X	X	X	X	FD(SS-38443-111419-GL-008)
SS-38443-111419-GL-010	SS-183	0	0.5	Soil	11/14/2019	11:30	X	X	X	X	X	X	X	
SS-38443-111419-GL-011	SS-183	0.5	2	Soil	11/14/2019	11:36	X	X	X	X	X	X	X	
SS-38443-111419-GL-012	SS-184	0	0.5	Soil	11/14/2019	11:50	X	X	X	X	X	X	X	
SS-38443-111419-GL-013	SS-184	0.5	2	Soil	11/14/2019	11:55	X	X	X	X	X	X	X	MS/MSD/DUP/ISD
SS-38443-111419-GL-014	SS-185	0	0.5	Soil	11/14/2019	12:13	X	X	X	X	X	X	X	
SS-38443-111419-GL-015	SS-185	0.5	2	Soil	11/14/2019	12:18	X	X	X	X	X	X	X	
SS-38443-111419-GL-016	SS-186	0	0.5	Soil	11/14/2019	12:24	X	X	X	X	X	X	X	
SS-38443-111419-GL-017	SS-186	0	0.5	Soil	11/14/2019	12:26	X	X	X	X	X	X	X	FD(SS-38443-111419-GL-016)
SS-38443-111419-GL-018	SS-186	0.5	2	Soil	11/14/2019	12:36	X	X	X	X	X	X	X	
SS-38443-111419-GL-019	SS-180	0	0.5	Soil	11/14/2019	12:56	X	X	X	X	X	X	X	
SS-38443-111419-GL-020	SS-180	0.5	2	Soil	11/14/2019	13:03	X	X	X	X	X	X	X	

## Notes:

- Not applicable
- Cr - Chromium
- DUP - Laboratory Duplicate
- FD - Field Duplicate sample of sample in parentheses
- ft bgs - Feet below ground surface
- ISD - Serial Dilution Sample
- MS/MSD - Matrix Spike/Matrix Spike Duplicate
- PCBs - Polychlorinated Biphenyls
- SVOCs - Semi-volatile Organic Compounds

Table 2A

**Analytical Results Summary**  
**Floodplain Soil Sampling**  
**ITW Corporate-South Dayton Dump and Landfill**  
**Moraine, Ohio**  
**November 2019**

Location ID:	SS-178	SS-178	SS-179	SS-179
Sample Name:	SS-38443-111419-GL-002	SS-38443-111419-GL-001	SS-38443-111419-GL-004	SS-38443-111419-GL-003
Sample Date:	11/14/2019	11/14/2019	11/14/2019	11/14/2019
Depth:	0.5-2 ft BGS	0-0.5 ft BGS	0.5-2 ft BGS	0-0.5 ft BGS

**Parameters****Unit****Semivolatile Organic Compounds**

2,2'-Oxybis(1-chloropropane) (bis(2-Chloroisopropyl) ether)	µg/kg	14 U	12 U	11 U	11 U
2,4,5-Trichlorophenol	µg/kg	94 U	84 U	76 U	74 U
2,4,6-Trichlorophenol	µg/kg	87 U	78 U	71 U	69 U
2,4-Dichlorophenol	µg/kg	60 U	53 U	49 U	47 U
2,4-Dimethylphenol	µg/kg	55 U	49 U	44 U	43 U
2,4-Dinitrophenol	µg/kg	190 U	170 U	160 U	150 U
2,4-Dinitrotoluene	µg/kg	85 U	75 U	68 U	67 U
2,6-Dinitrotoluene	µg/kg	77 U	68 U	62 U	60 U
2-Chloronaphthalene	µg/kg	19 U	17 U	15 U	15 U
2-Chlorophenol	µg/kg	14 U	12 U	11 U	11 U
2-Methylnaphthalene	µg/kg	8.9 J	49	9.4 J	6.1 J
2-Methylphenol	µg/kg	42 U	38 U	34 U	33 U
2-Nitroaniline	µg/kg	55 U	49 U	44 U	43 U
2-Nitrophenol	µg/kg	18 U	16 U	14 U	14 U
3&4-Methylphenol	µg/kg	40 U	35 U	32 U	31 U
3,3'-Dichlorobenzidine	µg/kg	59 U	52 U	47 U	46 U
3-Nitroaniline	µg/kg	67 U	60 U	54 U	53 U
4,6-Dinitro-2-methylphenol	µg/kg	110 U	97 U	88 U	86 U
4-Bromophenyl phenyl ether	µg/kg	19 U	17 U	15 U	15 U
4-Chloro-3-methylphenol	µg/kg	61 U	55 U	50 U	49 U
4-Chloroaniline	µg/kg	41 U	36 U	33 U	32 U
4-Chlorophenyl phenyl ether	µg/kg	19 U	17 U	15 U	15 U
4-Nitroaniline	µg/kg	82 U	73 U	66 U	65 U
4-Nitrophenol	µg/kg	130 U	110 U	100 U	100 U
Acenaphthene	µg/kg	3.9 U	25	26	19
Acenaphthylene	µg/kg	7.7 J	42	11 J	7.5 J
Acetophenone	µg/kg	15 U	13 U	12 U	12 U
Anthracene	µg/kg	22	77	97	100
Atrazine	µg/kg	49 U	44 U	40 U	39 U
Benzaldehyde	µg/kg	31 U	28 U	25 U	25 U
Benzo(a)anthracene	µg/kg	89	360	560	500
Benzo(a)pyrene	µg/kg	73	380	560	500
Benzo(b)fluoranthene	µg/kg	90	480	800	940 J
Benzo(g,h,i)perylene	µg/kg	39	200	240	120 J
Benzo(k)fluoranthene	µg/kg	40	200	320	350
Biphenyl (1,1-Biphenyl)	µg/kg	23 U	21 U	19 U	18 U
bis(2-Chloroethoxy)methane	µg/kg	16 U	15 U	13 U	13 U
bis(2-Chloroethyl)ether	µg/kg	16 U	15 U	13 U	13 U

Table 2A

**Analytical Results Summary**  
**Floodplain Soil Sampling**  
**ITW Corporate-South Dayton Dump and Landfill**  
**Moraine, Ohio**  
**November 2019**

Location ID:	SS-178	SS-178	SS-179	SS-179
Sample Name:	SS-38443-111419-GL-002	SS-38443-111419-GL-001	SS-38443-111419-GL-004	SS-38443-111419-GL-003
Sample Date:	11/14/2019	11/14/2019	11/14/2019	11/14/2019
Depth:	0.5-2 ft BGS	0-0.5 ft BGS	0.5-2 ft BGS	0-0.5 ft BGS

**Parameters****Unit****Semivolatile Organic Compounds**

bis(2-Ethylhexyl)phthalate (DEHP)	µg/kg	70 U	62 U	56 U	55 U
Butyl benzylphthalate (BBP)	µg/kg	30 U	27 U	24 U	24 U
Caprolactam	µg/kg	100 U	91 U	83 U	81 U
Carbazole	µg/kg	26 U	41 J	91	68
Chrysene	µg/kg	86	410	650	580
Di-n-butylphthalate (DBP)	µg/kg	30 U	27 U	24 U	24 U
Di-n-octyl phthalate (DnOP)	µg/kg	38 U	34 U	31 U	30 U
Dibenz(a,h)anthracene	µg/kg	13 J	62	68	36 J
Dibenzofuran	µg/kg	18 U	30 J	21 J	14 U
Diethyl phthalate	µg/kg	42 U	38 U	34 U	33 U
Dimethyl phthalate	µg/kg	19 U	17 U	15 U	15 U
Fluoranthene	µg/kg	130	730	1300	1100 J
Fluorene	µg/kg	5.7 J	30	33	29
Hexachlorobenzene	µg/kg	3.9 U	3.5 U	3.1 U	3.1 U
Hexachlorobutadiene	µg/kg	16 U	15 U	13 U	13 U
Hexachlorocyclopentadiene	µg/kg	85 U	75 U	68 U	R
Hexachloroethane	µg/kg	12 U	11 U	9.9 U	9.7 U
Indeno(1,2,3-cd)pyrene	µg/kg	37	190	240	130
Isophorone	µg/kg	16 U	15 U	13 U	13 U
N-Nitrosodi-n-propylamine	µg/kg	15 U	13 U	12 U	12 U
N-Nitrosodiphenylamine	µg/kg	16 U	15 U	13 U	13 U
Naphthalene	µg/kg	9.2 J	44	9.4 J	5.6 J
Nitrobenzene	µg/kg	18 U	16 U	14 U	14 U
Pentachlorophenol	µg/kg	79 U	70 U	64 U	63 U
Phenanthrene	µg/kg	78	410	630	520 J
Phenol	µg/kg	11 U	9.7 U	8.8 U	8.6 U
Pyrene	µg/kg	150	590	1100	1100 J

**PCBs**

Aroclor-1016 (PCB-1016)	µg/kg	30 U	26 U	24 U	23 U
Aroclor-1221 (PCB-1221)	µg/kg	32 U	28 U	27 U	26 U
Aroclor-1232 (PCB-1232)	µg/kg	31 U	27 U	26 U	24 U
Aroclor-1242 (PCB-1242)	µg/kg	25 U	22 U	21 U	20 U
Aroclor-1248 (PCB-1248)	µg/kg	32 U	28 U	50 J	140
Aroclor-1254 (PCB-1254)	µg/kg	31 U	27 U	26 U	24 U
Aroclor-1260 (PCB-1260)	µg/kg	30 U	26 U	24 U	23 U

Table 2A

**Analytical Results Summary**  
**Floodplain Soil Sampling**  
**ITW Corporate-South Dayton Dump and Landfill**  
**Moraine, Ohio**  
**November 2019**

Location ID:	SS-178	SS-178	SS-179	SS-179
Sample Name:	SS-38443-111419-GL-002	SS-38443-111419-GL-001	SS-38443-111419-GL-004	SS-38443-111419-GL-003
Sample Date:	11/14/2019	11/14/2019	11/14/2019	11/14/2019
Depth:	0.5-2 ft BGS	0-0.5 ft BGS	0.5-2 ft BGS	0-0.5 ft BGS

**Parameters****Unit****Metals**

Aluminum	mg/kg	2300	5600	3100	2100
Antimony	mg/kg	0.15 UJ	0.22 J	0.11 UJ	0.13 UJ
Arsenic	mg/kg	2.1	4.5	3.2	2.4
Barium	mg/kg	38	88	43	28
Beryllium	mg/kg	0.13 J	0.36	0.17 J	0.14 J
Cadmium	mg/kg	0.15 J	0.68	0.21	0.13 J
Calcium	mg/kg	94000	57000	80000	86000
Chromium	mg/kg	4.9	16	7.6	6.3
Chromium III (trivalent)	mg/kg	4.9	16	7.6	6.3
Chromium VI (hexavalent)	mg/kg	0.71 U	0.63 U	0.58 U	0.57 U
Cobalt	mg/kg	1.6	3.8	2.8	2.2
Copper	mg/kg	6.3	34	8.4	9.2
Iron	mg/kg	5700	11000	8000	5900
Lead	mg/kg	6.9	38	21	7.8
Magnesium	mg/kg	31000	19000	26000	27000
Manganese	mg/kg	150	160	250	210
Mercury	mg/kg	0.052 J	0.25 J	0.029 J	0.022 J
Nickel	mg/kg	4.9	13	8.4	6.2
Potassium	mg/kg	330	720	480	420
Selenium	mg/kg	0.14 U	0.42 J	0.26 J	0.15 J
Silver	mg/kg	0.054 J	0.34	0.058 J	0.025 J
Sodium	mg/kg	100 U	77 U	95 U	98 U
Thallium	mg/kg	0.093 J	0.23	0.10 J	0.075 J
Vanadium	mg/kg	8.2	16	9.3	7.1
Zinc	mg/kg	20	74	38	26

**General Chemistry**

Soot carbon	mg/kg	23000	21000	39000	33000
Total organic carbon (TOC)	mg/kg	4800	7900	7100	7200

Notes:

J - Estimated concentration

U - Not detected at the associated reporting limit

UJ - Not detected; associated reporting limit is estimated

PCBs - Polychlorinated Biphenyls

Table 2A

**Analytical Results Summary**  
**Floodplain Soil Sampling**  
**ITW Corporate-South Dayton Dump and Landfill**  
**Moraine, Ohio**  
**November 2019**

Location ID:	SS-180	SS-180	SS-181	SS-181
Sample Name:	SS-38443-111419-GL-020	SS-38443-111419-GL-019	SS-38443-111419-GL-006	SS-38443-111419-GL-005
Sample Date:	11/14/2019	11/14/2019	11/14/2019	11/14/2019
Depth:	0.5-2 ft BGS	0-0.5 ft BGS	0.5-2 ft BGS	0-0.5 ft BGS

**Parameters****Unit****Semivolatile Organic Compounds**

2,2'-Oxybis(1-chloropropane) (bis(2-Chloroisopropyl) ether)	µg/kg	46 U	25 U	23 U	24 U
2,4,5-Trichlorophenol	µg/kg	320 U	180 U	160 U	170 U
2,4,6-Trichlorophenol	µg/kg	290 U	160 U	150 U	150 U
2,4-Dichlorophenol	µg/kg	200 U	110 U	100 U	110 U
2,4-Dimethylphenol	µg/kg	180 U	100 U	93 U	96 U
2,4-Dinitrophenol	µg/kg	650 U	360 U	330 U	340 U
2,4-Dinitrotoluene	µg/kg	290 U	160 U	140 U	150 U
2,6-Dinitrotoluene	µg/kg	260 U	140 U	130 U	130 U
2-Chloronaphthalene	µg/kg	64 U	36 U	33 U	34 U
2-Chlorophenol	µg/kg	46 U	25 U	23 U	24 U
2-Methylnaphthalene	µg/kg	20 J	33 J	12 J	30 J
2-Methylphenol	µg/kg	140 U	79 U	72 U	74 U
2-Nitroaniline	µg/kg	180 U	100 U	93 U	96 U
2-Nitrophenol	µg/kg	60 U	33 U	30 U	31 U
3&4-Methylphenol	µg/kg	130 U	74 U	67 U	69 U
3,3'-Dichlorobenzidine	µg/kg	200 U	110 U	100 U	100 U
3-Nitroaniline	µg/kg	230 U	120 U	110 U	120 U
4,6-Dinitro-2-methylphenol	µg/kg	370 U	200 U	190 U	190 U
4-Bromophenyl phenyl ether	µg/kg	64 U	36 U	33 U	34 U
4-Chloro-3-methylphenol	µg/kg	210 U	110 U	100 U	110 U
4-Chloroaniline	µg/kg	140 U	76 U	70 U	72 U
4-Chlorophenyl phenyl ether	µg/kg	64 U	36 U	33 U	34 U
4-Nitroaniline	µg/kg	280 U	150 U	140 U	140 U
4-Nitrophenol	µg/kg	430 U	240 U	220 U	230 U
Acenaphthene	µg/kg	34 J	44	48	53
Acenaphthylene	µg/kg	18 U	19 J	14 J	17 J
Acetophenone	µg/kg	51 U	28 U	26 U	26 U
Anthracene	µg/kg	120	150	140	140
Atrazine	µg/kg	170 U	92 U	84 U	86 U
Benzaldehyde	µg/kg	110 U	59 U	54 U	55 U
Benzo(a)anthracene	µg/kg	630	890	790	790
Benzo(a)pyrene	µg/kg	660	960	830	820
Benzo(b)fluoranthene	µg/kg	1100	1700	1500	1400
Benzo(g,h,i)perylene	µg/kg	160	210	210	210
Benzo(k)fluoranthene	µg/kg	450	670	530	530
Biphenyl (1,1-Biphenyl)	µg/kg	78 U	43 U	40 U	41 U
bis(2-Chloroethoxy)methane	µg/kg	55 U	31 U	28 U	29 U
bis(2-Chloroethyl)ether	µg/kg	55 U	31 U	28 U	29 U

Table 2A

**Analytical Results Summary**  
**Floodplain Soil Sampling**  
**ITW Corporate-South Dayton Dump and Landfill**  
**Moraine, Ohio**  
**November 2019**

Location ID:	SS-180	SS-180	SS-181	SS-181
Sample Name:	SS-38443-111419-GL-020	SS-38443-111419-GL-019	SS-38443-111419-GL-006	SS-38443-111419-GL-005
Sample Date:	11/14/2019	11/14/2019	11/14/2019	11/14/2019
Depth:	0.5-2 ft BGS	0-0.5 ft BGS	0.5-2 ft BGS	0-0.5 ft BGS

**Parameters****Unit****Semivolatile Organic Compounds**

bis(2-Ethylhexyl)phthalate (DEHP)	µg/kg	4500	130 U	120 U	120 U
Butyl benzylphthalate (BBP)	µg/kg	100 U	56 U	51 U	53 U
Caprolactam	µg/kg	340 U	190 U	170 U	180 U
Carbazole	µg/kg	98 J	130	110 J	110 J
Chrysene	µg/kg	800	1100	870	930
Di-n-butylphthalate (DBP)	µg/kg	100 U	56 U	51 U	53 U
Di-n-octyl phthalate (DnOP)	µg/kg	130 U	71 U	65 U	67 U
Dibenz(a,h)anthracene	µg/kg	52 J	59	65	74
Dibenzofuran	µg/kg	60 U	35 J	30 J	38 J
Diethyl phthalate	µg/kg	140 U	79 U	72 U	74 U
Dimethyl phthalate	µg/kg	64 U	36 U	33 U	34 U
Fluoranthene	µg/kg	1600	2100	1900	1700
Fluorene	µg/kg	49 J	55	60	65
Hexachlorobenzene	µg/kg	13 U	7.3 U	6.6 U	6.8 U
Hexachlorobutadiene	µg/kg	55 U	31 U	28 U	29 U
Hexachlorocyclopentadiene	µg/kg	290 U	160 U	140 U	150 U
Hexachloroethane	µg/kg	41 U	23 U	21 U	22 U
Indeno(1,2,3-cd)pyrene	µg/kg	160	230	230	230
Isophorone	µg/kg	55 U	31 U	28 U	29 U
N-Nitrosodi-n-propylamine	µg/kg	51 U	28 U	26 U	26 U
N-Nitrosodiphenylamine	µg/kg	55 U	31 U	28 U	29 U
Naphthalene	µg/kg	30 J	34 J	11 J	29 J
Nitrobenzene	µg/kg	60 U	33 U	30 U	31 U
Pentachlorophenol	µg/kg	270 U	150 U	130 U	140 U
Phenanthrene	µg/kg	780	1000	950	900
Phenol	µg/kg	37 U	20 U	19 U	19 U
Pyrene	µg/kg	1500	1800	1500	1600

**PCBs**

Aroclor-1016 (PCB-1016)	µg/kg	26 U	27 U	25 U	26 U
Aroclor-1221 (PCB-1221)	µg/kg	28 U	29 U	27 U	28 U
Aroclor-1232 (PCB-1232)	µg/kg	27 U	28 U	26 U	27 U
Aroclor-1242 (PCB-1242)	µg/kg	22 U	23 U	21 U	22 U
Aroclor-1248 (PCB-1248)	µg/kg	28 U	140	27 U	28 U
Aroclor-1254 (PCB-1254)	µg/kg	44 J	28 U	51 J	87
Aroclor-1260 (PCB-1260)	µg/kg	26 U	27 U	25 U	26 U

Table 2A

**Analytical Results Summary**  
**Floodplain Soil Sampling**  
**ITW Corporate-South Dayton Dump and Landfill**  
**Moraine, Ohio**  
**November 2019**

Location ID:	SS-180	SS-180	SS-181	SS-181
Sample Name:	SS-38443-111419-GL-020	SS-38443-111419-GL-019	SS-38443-111419-GL-006	SS-38443-111419-GL-005
Sample Date:	11/14/2019	11/14/2019	11/14/2019	11/14/2019
Depth:	0.5-2 ft BGS	0-0.5 ft BGS	0.5-2 ft BGS	0-0.5 ft BGS

**Parameters****Unit****Metals**

Aluminum	mg/kg	3500	5000	3700	4700
Antimony	mg/kg	0.12 UJ	0.13 J	0.15 J	0.13 J
Arsenic	mg/kg	3.8	4.7	4.1	4.9
Barium	mg/kg	53	77	61	71
Beryllium	mg/kg	0.20	0.26	0.21	0.27
Cadmium	mg/kg	0.25	0.30	0.25	0.27
Calcium	mg/kg	90000	86000	85000	81000
Chromium	mg/kg	8.6	10	9.0	9.5
Chromium III (trivalent)	mg/kg	8.6	10	9.0	9.5
Chromium VI (hexavalent)	mg/kg	3.0 U	3.3 U	0.60 U	3.1 U
Cobalt	mg/kg	3.2	4.1	3.3	4.1
Copper	mg/kg	11	15	11	14
Iron	mg/kg	8700	11000	9200	11000
Lead	mg/kg	15	20	23	26
Magnesium	mg/kg	27000	24000	26000	25000
Manganese	mg/kg	290	380	350	370
Mercury	mg/kg	0.039 J	0.048 J	0.038 J	0.050 J
Nickel	mg/kg	9.0	13	9.4	12
Potassium	mg/kg	570	740	570	680
Selenium	mg/kg	0.29 J	0.41 J	0.30 J	0.35 J
Silver	mg/kg	0.13 J	0.074 J	0.070 J	0.076 J
Sodium	mg/kg	100 U	100 U	110 U	140 U
Thallium	mg/kg	0.12 J	0.16 J	0.12 J	0.15 J
Vanadium	mg/kg	10	13	10	12
Zinc	mg/kg	46	59	48	55

**General Chemistry**

Soot carbon	mg/kg	31000	20000	35000	29000
Total organic carbon (TOC)	mg/kg	10000	89000	11000	22000

Notes:

J - Estimated concentration

U - Not detected at the associated reporting limit

UJ - Not detected; associated reporting limit is estimated

PCBs - Polychlorinated Biphenyls

Table 2A

**Analytical Results Summary**  
**Floodplain Soil Sampling**  
**ITW Corporate-South Dayton Dump and Landfill**  
**Moraine, Ohio**  
**November 2019**

Location ID:	SS-182	SS-182	SS-182	SS-183
Sample Name:	SS-38443-111419-GL-008	SS-38443-111419-GL-009	SS-38443-111419-GL-007	SS-38443-111419-GL-011
Sample Date:	11/14/2019	11/14/2019	11/14/2019	11/14/2019
Depth:	0.5-2 ft BGS	0.5-2 ft BGS	0-0.5 ft BGS Duplicate	0.5-2 ft BGS

**Parameters****Unit****Semivolatile Organic Compounds**

2,2'-Oxybis(1-chloropropane) (bis(2-Chloroisopropyl) ether)	µg/kg	11 U	11 U	12 U	23 U
2,4,5-Trichlorophenol	µg/kg	78 U	78 U	81 U	160 U
2,4,6-Trichlorophenol	µg/kg	72 U	72 U	75 U	150 U
2,4-Dichlorophenol	µg/kg	50 U	50 U	52 U	100 U
2,4-Dimethylphenol	µg/kg	45 U	45 U	47 U	93 U
2,4-Dinitrophenol	µg/kg	160 U	160 U	170 U	330 U
2,4-Dinitrotoluene	µg/kg	70 U	70 U	73 U	140 U
2,6-Dinitrotoluene	µg/kg	63 U	63 U	66 U	130 U
2-Chloronaphthalene	µg/kg	16 U	16 U	16 U	33 U
2-Chlorophenol	µg/kg	11 U	11 U	12 U	23 U
2-Methylnaphthalene	µg/kg	11 J	14 J	11 J	17 J
2-Methylphenol	µg/kg	35 U	35 U	36 U	72 U
2-Nitroaniline	µg/kg	45 U	45 U	47 U	93 U
2-Nitrophenol	µg/kg	15 U	15 U	15 U	30 U
3&4-Methylphenol	µg/kg	33 U	33 U	34 U	68 U
3,3'-Dichlorobenzidine	µg/kg	48 U	48 U	51 U	100 U
3-Nitroaniline	µg/kg	55 U	55 U	58 U	110 U
4,6-Dinitro-2-methylphenol	µg/kg	90 U	90 U	94 U	190 U
4-Bromophenyl phenyl ether	µg/kg	16 U	16 U	16 U	33 U
4-Chloro-3-methylphenol	µg/kg	51 U	51 U	53 U	100 U
4-Chloroaniline	µg/kg	34 U	34 U	35 U	70 U
4-Chlorophenyl phenyl ether	µg/kg	16 U	16 U	16 U	33 U
4-Nitroaniline	µg/kg	68 U	68 U	71 U	140 U
4-Nitrophenol	µg/kg	110 U	110 U	110 U	220 U
Acenaphthene	µg/kg	23	32	21	110
Acenaphthylene	µg/kg	14 J	11 J	11 J	26 J
Acetophenone	µg/kg	12 U	12 U	13 U	26 U
Anthracene	µg/kg	76	100	53	250
Atrazine	µg/kg	41 U	41 U	42 U	84 U
Benzaldehyde	µg/kg	26 U	26 U	27 U	54 U
Benzo(a)anthracene	µg/kg	490	510	320	870
Benzo(a)pyrene	µg/kg	540	510	390	780
Benzo(b)fluoranthene	µg/kg	930	820	710	1200
Benzo(g,h,i)perylene	µg/kg	160	240	140	500
Benzo(k)fluoranthene	µg/kg	350	290	250	450
Biphenyl (1,1-Biphenyl)	µg/kg	19 U	19 U	20 U	40 U
bis(2-Chloroethoxy)methane	µg/kg	14 U	14 U	14 U	28 U
bis(2-Chloroethyl)ether	µg/kg	14 U	14 U	14 U	28 U

Table 2A

**Analytical Results Summary**  
**Floodplain Soil Sampling**  
**ITW Corporate-South Dayton Dump and Landfill**  
**Moraine, Ohio**  
**November 2019**

Location ID:	SS-182	SS-182	SS-182	SS-183
Sample Name:	SS-38443-111419-GL-008	SS-38443-111419-GL-009	SS-38443-111419-GL-007	SS-38443-111419-GL-011
Sample Date:	11/14/2019	11/14/2019	11/14/2019	11/14/2019
Depth:	0.5-2 ft BGS	0.5-2 ft BGS	0-0.5 ft BGS Duplicate	0.5-2 ft BGS

**Parameters****Unit****Semivolatile Organic Compounds**

bis(2-Ethylhexyl)phthalate (DEHP)	µg/kg	57 U	57 U	60 U	390
Butyl benzylphthalate (BBP)	µg/kg	40 J	25 U	26 U	51 U
Caprolactam	µg/kg	84 U	84 U	88 U	170 U
Carbazole	µg/kg	70	73	39 J	140
Chrysene	µg/kg	610	610	410	950
Di-n-butylphthalate (DBP)	µg/kg	25 U	25 U	26 U	51 U
Di-n-octyl phthalate (DnOP)	µg/kg	32 U	32 U	33 U	65 U
Dibenz(a,h)anthracene	µg/kg	47	74	40	140
Dibenzofuran	µg/kg	15 J	24 J	15 U	41 J
Diethyl phthalate	µg/kg	35 U	35 U	36 U	72 U
Dimethyl phthalate	µg/kg	22 J	16 U	1600	33 U
Fluoranthene	µg/kg	1200	1300	760	1900
Fluorene	µg/kg	26	35	22	94
Hexachlorobenzene	µg/kg	3.2 U	3.2 U	3.4 U	6.6 U
Hexachlorobutadiene	µg/kg	14 U	14 U	14 U	28 U
Hexachlorocyclopentadiene	µg/kg	70 U	70 U	73 U	140 U
Hexachloroethane	µg/kg	10 U	10 U	11 U	21 U
Indeno(1,2,3-cd)pyrene	µg/kg	170	240	140	440
Isophorone	µg/kg	14 U	14 U	14 U	28 U
N-Nitrosodi-n-propylamine	µg/kg	12 U	12 U	13 U	26 U
N-Nitrosodiphenylamine	µg/kg	14 U	14 U	14 U	28 U
Naphthalene	µg/kg	11 J	16 J	13 J	18 J
Nitrobenzene	µg/kg	15 U	15 U	15 U	30 U
Pentachlorophenol	µg/kg	65 U	65 U	68 U	140 U
Phenanthrene	µg/kg	500	660	330	1100
Phenol	µg/kg	9.0 U	9.0 U	36 J	19 U
Pyrene	µg/kg	960	1000	750	1600

**PCBs**

Aroclor-1016 (PCB-1016)	µg/kg	25 U	24 U	25 U	25 U
Aroclor-1221 (PCB-1221)	µg/kg	27 U	27 U	27 U	28 U
Aroclor-1232 (PCB-1232)	µg/kg	26 U	26 U	26 U	26 U
Aroclor-1242 (PCB-1242)	µg/kg	21 U	21 U	22 U	22 U
Aroclor-1248 (PCB-1248)	µg/kg	27 U	27 U	27 U	28 U
Aroclor-1254 (PCB-1254)	µg/kg	35 J	44 J	30 J	38 J
Aroclor-1260 (PCB-1260)	µg/kg	25 U	24 U	25 U	25 U

Table 2A

**Analytical Results Summary**  
**Floodplain Soil Sampling**  
**ITW Corporate-South Dayton Dump and Landfill**  
**Moraine, Ohio**  
**November 2019**

Location ID:	SS-182	SS-182	SS-182	SS-183
Sample Name:	SS-38443-111419-GL-008	SS-38443-111419-GL-009	SS-38443-111419-GL-007	SS-38443-111419-GL-011
Sample Date:	11/14/2019	11/14/2019	11/14/2019	11/14/2019
Depth:	0.5-2 ft BGS	0.5-2 ft BGS Duplicate	0-0.5 ft BGS	0.5-2 ft BGS

**Parameters****Unit****Metals**

Aluminum	mg/kg	4400	3900	3600	4900
Antimony	mg/kg	0.13 J	0.12 UJ	0.12 UJ	0.13 J
Arsenic	mg/kg	4.4	4.1	3.7	4.9
Barium	mg/kg	60	54	45	73
Beryllium	mg/kg	0.24	0.22	0.20	0.28
Cadmium	mg/kg	0.28	0.25	0.20	0.32
Calcium	mg/kg	80000	86000	85000	81000
Chromium	mg/kg	9.1	8.7	7.5	11
Chromium III (trivalent)	mg/kg	9.1	8.7	7.5	11
Chromium VI (hexavalent)	mg/kg	0.59 U	0.59 U	0.61 U	0.61 U
Cobalt	mg/kg	3.6	3.4	3.1	4.1
Copper	mg/kg	12	11	8.9	15
Iron	mg/kg	9800	9300	8500	11000
Lead	mg/kg	15	14	13	19
Magnesium	mg/kg	26000	28000	27000	26000
Manganese	mg/kg	310	300	270	340
Mercury	mg/kg	0.062 J	0.042 J	0.036 J	0.055 J
Nickel	mg/kg	11	9.9	8.7	12
Potassium	mg/kg	650	630	570	780
Selenium	mg/kg	0.33 J	0.30 J	0.24 J	0.42 J
Silver	mg/kg	0.10 J	0.087 J	0.051 J	0.12 J
Sodium	mg/kg	95 U	94 U	93 U	110 U
Thallium	mg/kg	0.14 J	0.13 J	0.11 J	0.16 J
Vanadium	mg/kg	11	11	10	13
Zinc	mg/kg	49	48	39	57

**General Chemistry**

Soot carbon	mg/kg	28000	27000	28000	26000
Total organic carbon (TOC)	mg/kg	11000	12000	15000	18000

Notes:

J - Estimated concentration

U - Not detected at the associated reporting limit

UJ - Not detected; associated reporting limit is estimated

PCBs - Polychlorinated Biphenyls

Table 2A

**Analytical Results Summary**  
**Floodplain Soil Sampling**  
**ITW Corporate-South Dayton Dump and Landfill**  
**Moraine, Ohio**  
**November 2019**

Location ID:	SS-183	SS-184	SS-184	SS-185
Sample Name:	SS-38443-111419-GL-010	SS-38443-111419-GL-013	SS-38443-111419-GL-012	SS-38443-111419-GL-015
Sample Date:	11/14/2019	11/14/2019	11/14/2019	11/14/2019
Depth:	0-0.5 ft BGS	0.5-2 ft BGS	0-0.5 ft BGS	0.5-2 ft BGS

**Parameters****Unit****Semivolatile Organic Compounds**

2,2'-Oxybis(1-chloropropane) (bis(2-Chloroisopropyl) ether)	µg/kg	24 U	11 U	24 U	12 U
2,4,5-Trichlorophenol	µg/kg	170 U	78 U	170 U	84 U
2,4,6-Trichlorophenol	µg/kg	150 U	72 U	160 U	78 U
2,4-Dichlorophenol	µg/kg	110 U	50 U	110 U	53 U
2,4-Dimethylphenol	µg/kg	97 U	45 U	97 U	48 U
2,4-Dinitrophenol	µg/kg	340 U	R	350 U	170 U
2,4-Dinitrotoluene	µg/kg	150 U	70 U	150 U	75 U
2,6-Dinitrotoluene	µg/kg	140 U	63 U	140 U	68 U
2-Chloronaphthalene	µg/kg	34 U	16 U	34 U	17 U
2-Chlorophenol	µg/kg	24 U	11 U	24 U	12 U
2-Methylnaphthalene	µg/kg	27 J	11 J	10 J	15 J
2-Methylphenol	µg/kg	75 U	35 U	75 U	38 U
2-Nitroaniline	µg/kg	97 U	45 U	97 U	48 U
2-Nitrophenol	µg/kg	31 U	15 U	32 U	16 U
3&4-Methylphenol	µg/kg	70 U	33 U	70 U	35 U
3,3'-Dichlorobenzidine	µg/kg	100 U	48 U	100 U	52 U
3-Nitroaniline	µg/kg	120 U	55 U	120 U	59 U
4,6-Dinitro-2-methylphenol	µg/kg	190 U	R	190 U	97 U
4-Bromophenyl phenyl ether	µg/kg	34 U	16 U	34 U	17 U
4-Chloro-3-methylphenol	µg/kg	110 U	51 U	110 U	55 U
4-Chloroaniline	µg/kg	73 U	34 U	73 U	36 U
4-Chlorophenyl phenyl ether	µg/kg	34 U	16 U	34 U	17 U
4-Nitroaniline	µg/kg	150 U	68 U	150 U	73 U
4-Nitrophenol	µg/kg	230 U	110 U	230 U	110 U
Acenaphthene	µg/kg	48	12 J	33 J	40
Acenaphthylene	µg/kg	18 J	13 J	26 J	13 J
Acetophenone	µg/kg	27 U	12 U	27 U	13 U
Anthracene	µg/kg	130	43 J	120	100
Atrazine	µg/kg	87 U	41 U	88 U	44 U
Benzaldehyde	µg/kg	56 U	26 U	56 U	28 U
Benzo(a)anthracene	µg/kg	730	390 J	630	610
Benzo(a)pyrene	µg/kg	790	440 J	630	670
Benzo(b)fluoranthene	µg/kg	1200	770 J	1000	1100
Benzo(g,h,i)perylene	µg/kg	240	120 J	540	190
Benzo(k)fluoranthene	µg/kg	610	330 J	350	450
Biphenyl (1,1-Biphenyl)	µg/kg	41 U	19 U	41 U	21 U
bis(2-Chloroethoxy)methane	µg/kg	29 U	14 U	29 U	15 U
bis(2-Chloroethyl)ether	µg/kg	29 U	14 U	29 U	15 U

Table 2A

**Analytical Results Summary**  
**Floodplain Soil Sampling**  
**ITW Corporate-South Dayton Dump and Landfill**  
**Moraine, Ohio**  
**November 2019**

Location ID:	SS-183	SS-184	SS-184	SS-185
Sample Name:	SS-38443-111419-GL-010	SS-38443-111419-GL-013	SS-38443-111419-GL-012	SS-38443-111419-GL-015
Sample Date:	11/14/2019	11/14/2019	11/14/2019	11/14/2019
Depth:	0-0.5 ft BGS	0.5-2 ft BGS	0-0.5 ft BGS	0.5-2 ft BGS

**Parameters****Unit****Semivolatile Organic Compounds**

bis(2-Ethylhexyl)phthalate (DEHP)	µg/kg	120 U	57 U	190	62 U
Butyl benzylphthalate (BBP)	µg/kg	53 U	25 U	53 U	27 U
Caprolactam	µg/kg	180 U	84 U	180 U	91 U
Carbazole	µg/kg	110 J	39 J	110 J	66
Chrysene	µg/kg	920	470 J	770	810
Di-n-butylphthalate (DBP)	µg/kg	53 U	25 U	53 U	27 U
Di-n-octyl phthalate (DnOP)	µg/kg	68 U	32 U	68 U	34 U
Dibenz(a,h)anthracene	µg/kg	76	35 J	120	57
Dibenzofuran	µg/kg	39 J	15 U	32 U	25 J
Diethyl phthalate	µg/kg	75 U	35 U	75 U	38 U
Dimethyl phthalate	µg/kg	34 U	16 U	34 U	17 U
Fluoranthene	µg/kg	1800	830 J	1600	1300
Fluorene	µg/kg	53	15 J	42	42
Hexachlorobenzene	µg/kg	6.9 U	3.2 U	6.9 U	3.5 U
Hexachlorobutadiene	µg/kg	29 U	14 U	29 U	15 U
Hexachlorocyclopentadiene	µg/kg	150 U	R	150 U	75 U
Hexachloroethane	µg/kg	22 U	10 U	22 U	11 U
Indeno(1,2,3-cd)pyrene	µg/kg	260	120 J	430	190
Isophorone	µg/kg	29 U	14 U	29 U	15 U
N-Nitrosodi-n-propylamine	µg/kg	27 U	12 U	27 U	13 U
N-Nitrosodiphenylamine	µg/kg	29 U	14 U	29 U	15 U
Naphthalene	µg/kg	30 J	10 J	12 J	15 J
Nitrobenzene	µg/kg	31 U	15 U	32 U	16 U
Pentachlorophenol	µg/kg	140 U	R	140 U	70 U
Phenanthrene	µg/kg	840	290 J	770	680
Phenol	µg/kg	19 U	9.0 U	19 U	9.7 U
Pyrene	µg/kg	1300	740 J	1300	1300

**PCBs**

Aroclor-1016 (PCB-1016)	µg/kg	26 U	25 U	26 U	26 U
Aroclor-1221 (PCB-1221)	µg/kg	29 U	27 U	28 U	29 U
Aroclor-1232 (PCB-1232)	µg/kg	28 U	26 U	27 U	28 U
Aroclor-1242 (PCB-1242)	µg/kg	23 U	22 U	22 U	48 J
Aroclor-1248 (PCB-1248)	µg/kg	180	27 U	28 U	29 U
Aroclor-1254 (PCB-1254)	µg/kg	28 U	43 J	62	120
Aroclor-1260 (PCB-1260)	µg/kg	26 U	25 U	26 U	26 U

Table 2A

**Analytical Results Summary**  
**Floodplain Soil Sampling**  
**ITW Corporate-South Dayton Dump and Landfill**  
**Moraine, Ohio**  
**November 2019**

Location ID:	SS-183	SS-184	SS-184	SS-185
Sample Name:	SS-38443-111419-GL-010	SS-38443-111419-GL-013	SS-38443-111419-GL-012	SS-38443-111419-GL-015
Sample Date:	11/14/2019	11/14/2019	11/14/2019	11/14/2019
Depth:	0-0.5 ft BGS	0.5-2 ft BGS	0-0.5 ft BGS	0.5-2 ft BGS

**Parameters****Unit****Metals**

Aluminum	mg/kg	3500	4000	5000	6000
Antimony	mg/kg	0.14 UJ	0.15 J	0.14 J	0.17 J
Arsenic	mg/kg	3.7	4.3	4.6	5.6
Barium	mg/kg	58	56	70	98
Beryllium	mg/kg	0.20 J	0.28	0.26	0.33
Cadmium	mg/kg	0.24	0.28	0.31	0.42
Calcium	mg/kg	85000	82000	89000	79000
Chromium	mg/kg	8.6	9.7	11	14
Chromium III (trivalent)	mg/kg	7.8	9.0	11	14
Chromium VI (hexavalent)	mg/kg	0.81 J	0.69 J	0.64 U	0.63 U
Cobalt	mg/kg	3.1	3.8	4.0	4.8
Copper	mg/kg	11	12	14	19
Iron	mg/kg	8500	10000	11000	13000
Lead	mg/kg	20	17	18	27
Magnesium	mg/kg	25000	27000	27000	24000
Manganese	mg/kg	300	310	360	410
Mercury	mg/kg	0.043 J	0.047 J	0.055 J	0.069 J
Nickel	mg/kg	9.3	10	12	14
Potassium	mg/kg	610	560	760	920
Selenium	mg/kg	0.30 J	0.33 J	0.40 J	0.52 J
Silver	mg/kg	0.090 J	0.12 J	0.10 J	0.16 J
Sodium	mg/kg	100 U	96 U	120 U	96 U
Thallium	mg/kg	0.12 J	0.16 J	0.15 J	0.20 J
Vanadium	mg/kg	10	11	14	15
Zinc	mg/kg	46	49	58	76

**General Chemistry**

Soot carbon	mg/kg	25000	30000	25000	21000
Total organic carbon (TOC)	mg/kg	14000	13000	21000	18000

Notes:

J - Estimated concentration

U - Not detected at the associated reporting limit

UJ - Not detected; associated reporting limit is estimated

PCBs - Polychlorinated Biphenyls

Table 2A

**Analytical Results Summary**  
**Floodplain Soil Sampling**  
**ITW Corporate-South Dayton Dump and Landfill**  
**Moraine, Ohio**  
**November 2019**

Location ID:	SS-185	SS-186	SS-186	SS-186
Sample Name:	SS-38443-111419-GL-014	SS-38443-111419-GL-018	SS-38443-111419-GL-016	SS-38443-111419-GL-017
Sample Date:	11/14/2019	11/14/2019	11/14/2019	11/14/2019
Depth:	0-0.5 ft BGS	0.5-2 ft BGS	0-0.5 ft BGS	0-0.5 ft BGS Duplicate

**Parameters****Unit****Semivolatile Organic Compounds**

2,2'-Oxybis(1-chloropropane) (bis(2-Chloroisopropyl) ether)	µg/kg	24 U	13 U	13 U	13 U
2,4,5-Trichlorophenol	µg/kg	170 U	87 U	89 U	89 U
2,4,6-Trichlorophenol	µg/kg	150 U	81 U	83 U	83 U
2,4-Dichlorophenol	µg/kg	110 U	55 U	57 U	57 U
2,4-Dimethylphenol	µg/kg	96 U	50 U	52 U	52 U
2,4-Dinitrophenol	µg/kg	340 U	180 U	180 U	180 U
2,4-Dinitrotoluene	µg/kg	150 U	78 U	80 U	80 U
2,6-Dinitrotoluene	µg/kg	130 U	70 U	72 U	72 U
2-Chloronaphthalene	µg/kg	34 U	18 U	18 U	18 U
2-Chlorophenol	µg/kg	24 U	13 U	13 U	13 U
2-Methylnaphthalene	µg/kg	17 J	14 J	12 J	17 J
2-Methylphenol	µg/kg	74 U	39 U	40 U	40 U
2-Nitroaniline	µg/kg	96 U	50 U	52 U	52 U
2-Nitrophenol	µg/kg	31 U	16 U	17 U	17 U
3&4-Methylphenol	µg/kg	69 U	36 U	37 U	37 U
3,3'-Dichlorobenzidine	µg/kg	100 U	54 U	56 U	55 U
3-Nitroaniline	µg/kg	120 U	62 U	63 U	63 U
4,6-Dinitro-2-methylphenol	µg/kg	190 U	100 U	100 U	100 U
4-Bromophenyl phenyl ether	µg/kg	34 U	18 U	18 U	18 U
4-Chloro-3-methylphenol	µg/kg	110 U	57 U	58 U	58 U
4-Chloroaniline	µg/kg	72 U	38 U	39 U	39 U
4-Chlorophenyl phenyl ether	µg/kg	34 U	18 U	18 U	18 U
4-Nitroaniline	µg/kg	140 U	76 U	78 U	77 U
4-Nitrophenol	µg/kg	230 U	120 U	120 U	120 U
Acenaphthene	µg/kg	45	21	16 J	22
Acenaphthylene	µg/kg	19 J	19	16 J	16 J
Acetophenone	µg/kg	26 U	14 U	14 U	14 U
Anthracene	µg/kg	120	62	56	65
Atrazine	µg/kg	86 U	45 U	47 U	46 U
Benzaldehyde	µg/kg	55 U	29 U	32 J	38 J
Benzo(a)anthracene	µg/kg	680	480	470	530
Benzo(a)pyrene	µg/kg	710	560	550	610
Benzo(b)fluoranthene	µg/kg	1100	840	990	1100
Benzo(g,h,i)perylene	µg/kg	620	250	180	210
Benzo(k)fluoranthene	µg/kg	340	380	370	420
Biphenyl (1,1-Biphenyl)	µg/kg	41 U	21 U	22 U	22 U
bis(2-Chloroethoxy)methane	µg/kg	29 U	15 U	16 U	15 U
bis(2-Chloroethyl)ether	µg/kg	29 U	15 U	16 U	15 U

Table 2A

**Analytical Results Summary**  
**Floodplain Soil Sampling**  
**ITW Corporate-South Dayton Dump and Landfill**  
**Moraine, Ohio**  
**November 2019**

Location ID:	SS-185	SS-186	SS-186	SS-186
Sample Name:	SS-38443-111419-GL-014	SS-38443-111419-GL-018	SS-38443-111419-GL-016	SS-38443-111419-GL-017
Sample Date:	11/14/2019	11/14/2019	11/14/2019	11/14/2019
Depth:	0-0.5 ft BGS	0.5-2 ft BGS	0-0.5 ft BGS	0-0.5 ft BGS Duplicate

**Parameters****Unit****Semivolatile Organic Compounds**

bis(2-Ethylhexyl)phthalate (DEHP)	µg/kg	130 J	71 J	66 U	66 U
Butyl benzylphthalate (BBP)	µg/kg	53 U	28 U	28 U	28 U
Caprolactam	µg/kg	180 U	94 U	97 U	97 U
Carbazole	µg/kg	99 J	58 J	46 J	61 J
Chrysene	µg/kg	820	650	630	710
Di-n-butylphthalate (DBP)	µg/kg	53 U	28 U	28 U	28 U
Di-n-octyl phthalate (DnOP)	µg/kg	67 U	35 U	36 U	36 U
Dibenz(a,h)anthracene	µg/kg	130	70	54	63
Dibenzofuran	µg/kg	31 U	16 J	17 U	17 U
Diethyl phthalate	µg/kg	74 U	39 U	40 U	40 U
Dimethyl phthalate	µg/kg	34 U	18 U	18 U	18 U
Fluoranthene	µg/kg	1700	1100	1100	1100
Fluorene	µg/kg	49	26	19	25
Hexachlorobenzene	µg/kg	6.8 U	3.6 U	3.7 U	3.7 U
Hexachlorobutadiene	µg/kg	29 U	15 U	16 U	15 U
Hexachlorocyclopentadiene	µg/kg	150 U	78 U	80 U	80 U
Hexachloroethane	µg/kg	22 U	11 U	12 U	12 U
Indeno(1,2,3-cd)pyrene	µg/kg	480	240	210	220
Isophorone	µg/kg	29 U	15 U	16 U	15 U
N-Nitrosodi-n-propylamine	µg/kg	26 U	14 U	14 U	14 U
N-Nitrosodiphenylamine	µg/kg	29 U	15 U	16 U	15 U
Naphthalene	µg/kg	16 J	16 J	13 J	18 J
Nitrobenzene	µg/kg	31 U	16 U	17 U	17 U
Pentachlorophenol	µg/kg	140 U	73 U	75 U	75 U
Phenanthrene	µg/kg	780	410	400	480
Phenol	µg/kg	19 U	10 U	10 U	10 U
Pyrene	µg/kg	1400	920	1000	1000

**PCBs**

Aroclor-1016 (PCB-1016)	µg/kg	27 U	27 U	28 U	28 U
Aroclor-1221 (PCB-1221)	µg/kg	29 U	29 U	31 U	30 U
Aroclor-1232 (PCB-1232)	µg/kg	28 U	28 U	29 U	29 U
Aroclor-1242 (PCB-1242)	µg/kg	23 U	23 U	53 J	61 J
Aroclor-1248 (PCB-1248)	µg/kg	150	29 U	31 U	30 U
Aroclor-1254 (PCB-1254)	µg/kg	28 U	130	53 J	58 J
Aroclor-1260 (PCB-1260)	µg/kg	27 U	27 U	28 U	28 U

Table 2A

**Analytical Results Summary**  
**Floodplain Soil Sampling**  
**ITW Corporate-South Dayton Dump and Landfill**  
**Moraine, Ohio**  
**November 2019**

Location ID:	SS-185	SS-186	SS-186	SS-186
Sample Name:	SS-38443-111419-GL-014	SS-38443-111419-GL-018	SS-38443-111419-GL-016	SS-38443-111419-GL-017
Sample Date:	11/14/2019	11/14/2019	11/14/2019	11/14/2019
Depth:	0-0.5 ft BGS	0.5-2 ft BGS	0-0.5 ft BGS	0-0.5 ft BGS Duplicate

**Parameters****Unit****Metals**

Aluminum	mg/kg	4700	9700	7900	8000
Antimony	mg/kg	0.14 J	0.24 J	0.21 J	0.20 J
Arsenic	mg/kg	4.7	8.4	7.2	7.2
Barium	mg/kg	76	130	120	120
Beryllium	mg/kg	0.26	0.50	0.42	0.42
Cadmium	mg/kg	0.33	0.69	0.48	0.47
Calcium	mg/kg	80000	67000	72000	72000
Chromium	mg/kg	13	20	15	15
Chromium III (trivalent)	mg/kg	13	20	15	15
Chromium VI (hexavalent)	mg/kg	0.63 U	0.66 U	3.4 U	3.4 U
Cobalt	mg/kg	3.9	7.2	6.1	6.2
Copper	mg/kg	15	26	21	21
Iron	mg/kg	11000	19000	16000	17000
Lead	mg/kg	18	34	26	24
Magnesium	mg/kg	25000	23000	24000	23000
Manganese	mg/kg	360	550	510	510
Mercury	mg/kg	0.058 J	0.097 J	0.079 J	0.067 J
Nickel	mg/kg	13	21	17	18
Potassium	mg/kg	740	1400	1200	1200
Selenium	mg/kg	0.40 J	0.71 J	0.64 J	0.68 J
Silver	mg/kg	0.099 J	0.38	0.18 J	0.18 J
Sodium	mg/kg	100 U	87 U	88 U	88 U
Thallium	mg/kg	0.15 J	0.30	0.25	0.24
Vanadium	mg/kg	13	22	18	19
Zinc	mg/kg	61	100	89	88

**General Chemistry**

Soot carbon	mg/kg	30000	13000	16000	19000
Total organic carbon (TOC)	mg/kg	23000	93000	30000	31000

Notes:

J - Estimated concentration

U - Not detected at the associated reporting limit

UJ - Not detected; associated reporting limit is estimated

PCBs - Polychlorinated Biphenyls

Table 2B

**Analytical Results Summary**  
**Floodplain Soil Sampling**  
**ITW Corporate-South Dayton Dump and Landfill**  
**Moraine, Ohio**  
**November 2019**

Location ID:	Equipment Blank	Equipment Blank
Sample Name:	RB-38443-111419-GL-001	RB-38443-111419-GL-002
Sample Date:	11/14/2019	11/14/2019

**Parameters****Unit****Semivolatile Organic Compounds**

2,2'-Oxybis(1-chloropropane) (bis(2-Chloroisopropyl) ether)	µg/L	0.53 U	0.55 U
2,4,5-Trichlorophenol	µg/L	1.9 U	2.0 U
2,4,6-Trichlorophenol	µg/L	1.7 U	1.8 U
2,4-Dichlorophenol	µg/L	0.25 U	0.26 U
2,4-Dimethylphenol	µg/L	0.50 U	0.52 U
2,4-Dinitrophenol	µg/L	6.0 U	6.2 U
2,4-Dinitrotoluene	µg/L	2.0 U	2.1 U
2,6-Dinitrotoluene	µg/L	2.0 U	2.1 U
2-Chloronaphthalene	µg/L	0.46 U	0.48 U
2-Chlorophenol	µg/L	0.26 U	0.27 U
2-Methylnaphthalene	µg/L	0.11 U	0.11 U
2-Methylphenol	µg/L	0.20 U	0.21 U
2-Nitroaniline	µg/L	0.49 U	0.51 U
2-Nitrophenol	µg/L	0.54 U	0.56 U
3&4-Methylphenol	µg/L	0.18 U	0.19 U
3,3'-Dichlorobenzidine	µg/L	1.1 U	1.2 U
3-Nitroaniline	µg/L	0.54 U	0.57 U
4,6-Dinitro-2-methylphenol	µg/L	2.7 U	2.8 U
4-Bromophenyl phenyl ether	µg/L	0.48 U	0.50 U
4-Chloro-3-methylphenol	µg/L	0.28 U	0.30 U
4-Chloroaniline	µg/L	0.30 U	0.32 U
4-Chlorophenyl phenyl ether	µg/L	0.53 U	0.55 U
4-Nitroaniline	µg/L	0.88 U	0.92 U
4-Nitrophenol	µg/L	2.1 U	2.2 U
Acenaphthene	µg/L	0.17 U	0.17 U
Acenaphthylene	µg/L	0.12 U	0.13 U
Acetophenone	µg/L	0.35 U	0.37 U
Anthracene	µg/L	0.13 U	0.14 U
Atrazine	µg/L	0.92 U	0.95 U
Benzaldehyde	µg/L	0.73 U	0.76 U
Benzo(a)anthracene	µg/L	0.16 U	0.17 U
Benzo(a)pyrene	µg/L	0.17 U	0.17 U
Benzo(b)fluoranthene	µg/L	0.15 U	0.15 U
Benzo(g,h,i)perylene	µg/L	0.17 U	0.18 U
Benzo(k)fluoranthene	µg/L	0.13 U	0.14 U
Biphenyl (1,1-Biphenyl)	µg/L	0.47 U	0.49 U
bis(2-Chloroethoxy)methane	µg/L	0.44 U	0.46 U
bis(2-Chloroethyl)ether	µg/L	0.39 U	0.40 U
bis(2-Ethylhexyl)phthalate (DEHP)	µg/L	2.1 U	2.2 U
Butyl benzylphthalate (BBP)	µg/L	0.64 U	0.67 U
Caprolactam	µg/L	0.90 U	0.93 U
Carbazole	µg/L	0.47 U	0.49 U
Chrysene	µg/L	0.18 U	0.19 U
Di-n-butylphthalate (DBP)	µg/L	1.7 U	1.8 U
Di-n-octyl phthalate (DnOP)	µg/L	0.79 U	0.82 U
Dibenz(a,h)anthracene	µg/L	0.15 U	0.15 U
Dibenzofuran	µg/L	0.54 U	0.56 U
Diethyl phthalate	µg/L	3.7 U	4.9 J
Dimethyl phthalate	µg/L	0.50 U	0.52 U
Fluoranthene	µg/L	0.15 U	0.16 U
Fluorene	µg/L	0.16 U	0.17 U
Hexachlorobenzene	µg/L	0.15 U	0.16 U

Table 2B

**Analytical Results Summary  
Floodplain Soil Sampling  
ITW Corporate-South Dayton Dump and Landfill  
Moraine, Ohio  
November 2019**

<b>Location ID:</b>	<b>Equipment Blank</b>	<b>Equipment Blank</b>
<b>Sample Name:</b>	<b>RB-38443-111419-GL-001</b>	<b>RB-38443-111419-GL-002</b>
<b>Sample Date:</b>	<b>11/14/2019</b>	<b>11/14/2019</b>

**Parameters****Unit****Semivolatile Organic Compounds**

Hexachlorobutadiene	µg/L	0.52 U	0.54 U
Hexachlorocyclopentadiene	µg/L	1.7 U	1.8 U
Hexachloroethane	µg/L	0.38 U	0.40 U
Indeno(1,2,3-cd)pyrene	µg/L	0.13 U	0.14 U
Isophorone	µg/L	0.31 U	0.32 U
N-Nitrosodi-n-propylamine	µg/L	0.24 U	0.25 U
N-Nitrosodiphenylamine	µg/L	0.42 U	0.44 U
Naphthalene	µg/L	0.10 U	0.11 U
Nitrobenzene	µg/L	0.49 U	0.51 U
Pentachlorophenol	µg/L	3.0 U	3.1 U
Phenanthrene	µg/L	0.16 U	0.17 U
Phenol	µg/L	0.12 U	0.13 U
Pyrene	µg/L	0.17 U	0.18 U

**PCBs**

Aroclor-1016 (PCB-1016)	µg/L	0.054 U	0.054 U
Aroclor-1221 (PCB-1221)	µg/L	0.055 U	0.055 U
Aroclor-1232 (PCB-1232)	µg/L	0.071 U	0.071 U
Aroclor-1242 (PCB-1242)	µg/L	0.073 U	0.073 U
Aroclor-1248 (PCB-1248)	µg/L	0.048 U	0.048 U
Aroclor-1254 (PCB-1254)	µg/L	0.038 U	0.038 U
Aroclor-1260 (PCB-1260)	µg/L	0.044 U	0.044 U
Aroclor-1262 (PCB-1262)	µg/L	0.056 U	0.056 U
Aroclor-1268 (PCB-1268)	µg/L	0.060 U	0.060 U

**Metals**

Aluminum	µg/L	220	110 J
Antimony	µg/L	7.5 U	7.5 U
Arsenic	µg/L	4.1 U	4.1 U
Barium	µg/L	3.6 J	2.5 J
Beryllium	µg/L	0.60 U	0.60 U
Cadmium	µg/L	0.20 U	0.20 U
Calcium	µg/L	1100 J	760 J
Chromium	µg/L	0.72 J	0.63 U
Cobalt	µg/L	0.75 U	0.75 U
Copper	µg/L	3.5 U	3.5 U
Iron	µg/L	150 J	67 J
Lead	µg/L	2.8 U	2.8 U
Magnesium	µg/L	260 U	260 U
Manganese	µg/L	2.1 U	2.1 U
Mercury	µg/L	0.13 U	0.13 U
Nickel	µg/L	2.2 U	2.2 U
Potassium	µg/L	560 U	560 U
Selenium	µg/L	6.0 U	6.0 U
Silver	µg/L	0.62 U	0.62 U
Sodium	µg/L	2300 J	2300 J
Thallium	µg/L	2.7 U	2.7 U
Vanadium	µg/L	5.6 U	5.6 U
Zinc	µg/L	9.7 U	46 J

Table 2B

**Analytical Results Summary**  
**Floodplain Soil Sampling**  
**ITW Corporate-South Dayton Dump and Landfill**  
**Moraine, Ohio**  
**November 2019**

<b>Location ID:</b>	<b>Equipment Blank</b>	<b>Equipment Blank</b>
<b>Sample Name:</b>	<b>RB-38443-111419-GL-001</b>	<b>RB-38443-111419-GL-002</b>
<b>Sample Date:</b>	<b>11/14/2019</b>	<b>11/14/2019</b>

Parameters	Unit	
<b>General Chemistry</b>		
Total organic carbon (TOC)	mg/L	0.21 J      0.52 J

## Notes:

J - Estimated concentration

U - Not detected at the associated reporting limit

PCBs - Polychlorinated Biphenyls

**Table 3**

**Analytical Methods**  
**Floodplain Soil Sampling**  
**ITW Corporate-South Dayton Dump and Landfill**  
**Moraine, Ohio**  
**November 2019**

<b>Parameter</b>	<b>Method</b>	<b>Matrix</b>	<b>Holding Time</b>	
			<b>Collection to Extraction (Days)</b>	<b>Collection or Extraction to Analysis (Days)</b>
Semi-Volatile Organic Compounds (SVOCs)	SW-846 8270C	Soil	14	40
Polychlorinated Biphenyls (PCBs)	SW-846 8082A	Soil	14	40
Select Metals	SW-846 6020	Soil	-	180
Mercury	SW-846 7471A	Soil	-	28
Total Organic Carbon/Black (Soot) Carbon	Walkley Black/Lloyd Kahn	Soil	-	28 (14 for Lloyd Kahn)
Hexavalent and Trivalent Chromium	SW-846 7198/Calculation	Soil	30	24 hours

**Notes:**

- SW-846      - "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW-846, Third Edition, 1986, with subsequent revisions  
 -            - Not applicable

**Table 4**

**Qualified Sample Results Due to Outlying MS/MSD Results**  
**Floodplain Soil Sampling**  
**ITW Corporate-South Dayton Dump and Landfill**  
**Moraine, Ohio**  
**November 2019**

Parameter	Sample ID	Analyte	MS	MSD	RPD	Control Limits		Qualified Result	Units
			% Recovery	% Recovery	(percent)	% Recovery	RPD		
SVOCs	SS-38443-111419-GL-003	Benzo(b)fluoranthene	55	161	45	27-126	40	940 J	µg/Kg
		Benzo(g,h,i)perylene	16	26	28	29-122	40	120 J	µg/Kg
		Dibenz(a,h)anthracene	27	29	7	36-120	38	36 J	µg/Kg
		Fluoranthene	35	230	68	30-125	31	1100 J	µg/Kg
		Hexachlorocyclopentadiene	0	0	NC	10-120	40	R	
		Phenanthrene	58	149	52	31-120	35	520 J	µg/Kg
		Pyrene	10	170	66	28-122	30	1100 J	µg/Kg
SVOCs	SS-38443-111419-GL-013	2,4-Dinitrophenol	0	0	NC	10-120	40	R	
		4,6-Dinitro-2-methylphenol	0	0	NC	10-123	40	R	
		Acenaphthene	51	97	61	41-120	34	12 J	µg/Kg
		Anthracene	57	137	77	43-106	32	43 J	µg/Kg
		Benzo(a)anthracene	63	343	110	32-120	37	390 J	µg/Kg
		Benzo(a)pyrene	57	309	104	35-120	38	440 J	µg/Kg
		Benzo(b)fluoranthene	70	520	113	27-126	40	770 J	µg/Kg
		Benzo(g,h,i)perylene	12	53	85	29-122	40	120 J	µg/Kg
		Benzo(k)fluoranthene	73	230	81	39-120	37	330 J	µg/Kg
		Carbazole	56	140	82	46-120	28	39 J	µg/Kg
		Chrysene	59	380	114	31-121	37	470 J	µg/Kg
		Dibenz(a,h)anthracene	20	36	51	36-120	38	35 J	µg/Kg
		Fluoranthene	71	494	108	30-125	31	830 J	µg/Kg
		Fluorene	55	104	61	44-120	32	15 J	µg/Kg
		Hexachlorocyclopentadiene	0	0	NC	10-120	40	R	
		Indeno(1,2,3-cd)pyrene	19	67	82	34-120	40	120 J	µg/Kg
		Pentachlorophenol	5	6	34	10-120	40	R	
		Phenanthrene	79	501	128	31-120	35	290 J	µg/Kg
		Pyrene	74	524	113	28-122	30	740 J	µg/Kg

**Table 4**

**Qualified Sample Results Due to Outlying MS/MSD Results**  
**Floodplain Soil Sampling**  
**ITW Corporate-South Dayton Dump and Landfill**  
**Moraine, Ohio**  
**November 2019**

Parameter	Sample ID	Analyte	MS	MSD	RPD	Control Limits		Qualified Result	Units
			% Recovery	% Recovery	(percent)	% Recovery	RPD		
Metals	SS-38443-111419-GL-013	Antimony	45	48	7	75-125	20	0.15 J	mg/Kg
	SS-38443-111419-GL-001								
	SS-38443-111419-GL-002								
	SS-38443-111419-GL-003								
	SS-38443-111419-GL-004								
	SS-38443-111419-GL-005								
	SS-38443-111419-GL-006								
	SS-38443-111419-GL-007								
	SS-38443-111419-GL-008								
	SS-38443-111419-GL-009								
	SS-38443-111419-GL-010								
	SS-38443-111419-GL-011								
	SS-38443-111419-GL-012								
	SS-38443-111419-GL-014								
	SS-38443-111419-GL-015								
	SS-38443-111419-GL-016								
	SS-38443-111419-GL-017								
	SS-38443-111419-GL-018								
	SS-38443-111419-GL-019								
	SS-38443-111419-GL-020								

Table 4

**Qualified Sample Results Due to Outlying MS/MSD Results**  
**Floodplain Soil Sampling**  
**ITW Corporate-South Dayton Dump and Landfill**  
**Moraine, Ohio**  
**November 2019**

Parameter	Sample ID	Analyte	MS	MSD	RPD	Control Limits		Qualified Result	Units
			% Recovery	% Recovery	(percent)	% Recovery	RPD		
Metals	SS-38443-111419-GL-013	Mercury	100	134	25	80-120	20	0.047 J	mg/Kg
	SS-38443-111419-GL-001							0.25 J	mg/Kg
	SS-38443-111419-GL-002							0.052 J	mg/Kg
	SS-38443-111419-GL-003							0.022 J	mg/Kg
	SS-38443-111419-GL-004							0.029 J	mg/Kg
	SS-38443-111419-GL-005							0.050 J	mg/Kg
	SS-38443-111419-GL-006							0.038 J	mg/Kg
	SS-38443-111419-GL-007							0.036 J	mg/Kg
	SS-38443-111419-GL-008							0.062 J	mg/Kg
	SS-38443-111419-GL-009							0.042 J	mg/Kg
	SS-38443-111419-GL-010							0.043 J	mg/Kg
	SS-38443-111419-GL-011							0.055 J	mg/Kg
	SS-38443-111419-GL-012							0.055 J	mg/Kg
	SS-38443-111419-GL-014							0.058 J	mg/Kg
	SS-38443-111419-GL-015							0.069 J	mg/Kg
	SS-38443-111419-GL-016							0.079 J	mg/Kg
	SS-38443-111419-GL-017							0.067 J	mg/Kg
	SS-38443-111419-GL-018							0.097 J	mg/Kg
	SS-38443-111419-GL-019							0.048 J	mg/Kg
	SS-38443-111419-GL-020							0.039 J	mg/Kg

Notes:

- J - Estimated concentration
- MS - Matrix Spike
- MSD - Matrix Spike Duplicate
- R - Rejected
- RPD - Relative Percent Difference
- SVOCs - Semi-volatile Organic Compounds
- UJ - Not detected; associated reporting limit is estimated

**Table 5**

**Qualified Sample Data Due to Analyte Concentrations in the Rinse Blanks**  
**Floodplain Soil Sampling**  
**ITW Corporate-South Dayton Dump and Landfill**  
**Moraine, Ohio**  
**November 2019**

Parameter	Rinse Blank ID	Blank Date (dd/mm/yyyy)	Analyte	Blank Result	Associated Sample ID	Original Result	Qualified Result	Units
Metals	RB-38443-111419-GL-001	11/14/2019	Sodium	230 J	SS-38443-111419-GL-001 SS-38443-111419-GL-002 SS-38443-111419-GL-003 SS-38443-111419-GL-004 SS-38443-111419-GL-005 SS-38443-111419-GL-006 SS-38443-111419-GL-007 SS-38443-111419-GL-008 SS-38443-111419-GL-009 SS-38443-111419-GL-010 SS-38443-111419-GL-011 SS-38443-111419-GL-012 SS-38443-111419-GL-013 SS-38443-111419-GL-014 SS-38443-111419-GL-015 SS-38443-111419-GL-016 SS-38443-111419-GL-017 SS-38443-111419-GL-018 SS-38443-111419-GL-019 SS-38443-111419-GL-020	77 J 100 J 98 J 95 J 140 J 110 J 93 J 95 J 94 J 100 J 110 J 120 J 96 J 100 J 96 J 88 J 88 J 87 J 100 J 100 J	77 U 100 U 98 U 95 U 140 U 110 U 93 U 95 U 94 U 100 U 110 U 120 U 96 U 100 U 96 U 88 U 88 U 87 U 100 U 100 U	mg/Kg mg/Kg mg/Kg mg/Kg mg/Kg mg/Kg mg/Kg mg/Kg mg/Kg mg/Kg mg/Kg mg/Kg mg/Kg mg/Kg mg/Kg mg/Kg mg/Kg mg/Kg mg/Kg mg/Kg

Notes:

J - Estimated concentration

U - Not detected at the associated reporting limit

## **Attachment B**



# Memorandum

June 8, 2020

To: Julian Hayward  
*WWD*  
Ref. No.: 038443

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From: Wesley Dyck, Daniela Araujo/kf/80

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Subject: Statistical Evaluation of Floodplain Soil Data  
South Dayton Dump and Landfill Site  
Moraine, Ohio

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## 1. Introduction

This memorandum presents an evaluation of floodplain soil data collected as part of the Remedial Investigation (RI) for the South Dayton Dump and Landfill Site (Site). Floodplain soil samples were collected in two general areas near the Great Miami River (GMR): off-Site adjacent to Operable Unit One (OU1), herein referred to as "Adjacent" samples; and "Upstream" of the Site adjacent to Carillon Park. Sample locations are shown on Figure 1. The statistical evaluation consisted of comparisons between analyte concentrations in Adjacent floodplain soil samples against Upstream conditions.

The floodplain soil sampling events considered in this evaluation include the following:

- August 6-8, 2018 – Adjacent sampling at twelve locations, two depths each
- December 10, 2018 – Upstream sampling (adjacent to Carillon Park) at eight locations, two depths each
- November 14, 2019 – Adjacent sampling at nine locations, two depths each

As indicated above soil samples were collected from two depth intervals at each location. This included a sample from the upper interval, typically the top 6-inches of soil, and the underlying soil from 6-inches to two feet below ground surface (BGS). These are henceforth referred to as "Shallow" and "Deep" samples respectively.

An initial statistical evaluation was conducted following the 2018 sampling events, comparing the Adjacent and Upstream floodplain soil sample analytical results for volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), metals, polychlorinated biphenyls (PCBs), pesticides, herbicides and total cyanide. Based on comparison of the 2018 sample results to relevant soil screening levels, GHD collected additional soil samples in the area adjacent to the Site in 2019 for analysis of SVOCs, metals and PCBs.

This memorandum presents the results of two sets of evaluations:

- 1) 2018 events only: comparing Adjacent vs. Upstream VOC, SVOC, metals, PCB, pesticides, herbicides and total cyanide analyte concentrations in floodplain soil samples.



- 2) 2018 and 2019 events: comparing Adjacent (2018 and 2019) vs. Upstream (2018 only) SVOC, metals and PCB concentrations in floodplain soil samples.

## **2. Statistical Evaluation Approach**

In the data analysis, two primary study questions were considered in selecting and performing statistical tests:

- a) Do analyte concentrations in Adjacent floodplain soils, as a group, differ from concentrations in Upstream floodplain soils?
- b) Is there any observable difference in analyte concentrations with depth, comparing the Shallow to the Deep sample results?

In order to answer these questions, statistical tests were conducted comparing the different groups of samples (Adjacent vs. Upstream, and Shallow vs. Deep). The methods used were applied slightly differently to answer each respective question, as described in detail below.

### **2.1 Scope of Data Considered**

The available analytical data from floodplain soil samples collected during 2018 and 2019 are provided in Table 1 (Upstream locations) and Table 2 (Adjacent locations). In each case soil samples were collected at two depths in the soil profile as noted above.

As noted in the introduction above, samples were collected during three sampling events, as follow:

- Adjacent samples were collected August 2018 at twelve locations (24 samples plus duplicates)
- Upstream samples were collected in December 2018 at eight locations (16 samples plus duplicates)
- Adjacent samples were collected in November 2019 at nine locations (18 samples plus duplicates)

The analytical results available for samples collected during each of these sampling events, in terms of the requested analytes, are summarized in the following table.

Analyte Group	August 2018 (Adjacent)	December 2018 (Upstream)	November 2019 (Adjacent)
VOCs	✓	✓	
SVOCs	✓	✓	✓
Metals	✓	✓	✓
PCBs	✓	✓	✓
Pesticides	✓	✓	
Herbicides	✓	✓	
Total Cyanide	✓	✓	



## 2.2 Statistical Methods for Adjacent vs. Upstream Comparisons

The goal of the statistical evaluation was to determine if analyte concentrations in floodplain soils collected adjacent to OU1 (Adjacent samples) were statistically different from those in Upstream floodplain soils. These comparisons were conducted using group comparison tests, in which a statistical parameter (e.g., mean/average, median and or percentile) was compared between the two groups of data (e.g., mean of the Adjacent group vs. mean of the Upstream group). The tests utilized are recommended by United States Environmental Protection Agency (USEPA) guidance documents (e.g., 2006, 1994, and others), specifically the Student *t*-test, the Mann-Whitney/Wilcoxon Rank-Sum (WRS) test and the Quantile Test.

The two sample *t*-test (Section 3.3.1.1 of USEPA, 2006) tests for differences in the mean of the Adjacent and Upstream populations. This test assumes that both populations are normally distributed, or normal using a suitable transformation (e.g., gamma or log transformation) and that the population variances of the two groups are approximately equal. The *t*-test was utilized when both Adjacent and Upstream data sets were found to have a discernible distribution.

In cases where the data did not follow identifiable data distributions, or where the apparent data distributions differed between the groups (e.g., normal Upstream vs. lognormal Adjacent) potentially impacting the statistical power of the *t*-test, the WRS and Quantile tests were performed (as recommended by USEPA 2006). Both the WRS test and the Quantile Test are non-parametric procedures (i.e., are rank based and do not assume a specific data distribution). The WRS test compares two groups of data based on the ranks of their observations. If one group has a much higher rank sum than the other (based on standard tables for specific number of samples and confidence level), then it is concluded to be higher than the other group. The Quantile Test compares groups of data based on the tails (ends) of their distributions, rather than their central values (means or medians). The Quantile Test evaluates whether or not a disproportionate number of the highest or lowest observations are found in one group of data compared to the other.

## 2.3 Statistical Methods for Comparing Sample Depths

Since floodplain soil samples were collected at two different soil depths, the potential for significant differences in analyte concentration with depth was tested. This testing was conducted through the calculation of relative percent difference (RPDs) values between the Shallow and Deep sample concentrations at each location, followed by a one-sample Student *t*-test comparing the mean RPD to zero (i.e., if the shallow and deep samples have the same analyte concentration, the resulting RPD will be zero).

RPD values are used to compare paired data. Specifically, RPDs were used to evaluate if analyte concentrations analysed from soils collected at different depths intervals (Shallow and Deep) have a bias towards soil depths. The calculation of an RPD standardizes the absolute difference in the results from two sampling results, allowing this RPD to be meaningfully compared to other paired data that may have a considerable difference in scale. That is, calculating the RPD values by location prevents noise introduced by spatial variation between locations from hindering the evaluation of a potential depth effect.

RPD values were calculated as follows (adapted for depths from USEPA, 2010):

$$RPD = \frac{(Shallow - Deep)}{Average} \times 100\%$$



In this RPD calculation, negative RPD values indicate that the Shallow sample had a lower concentration than the Deep sample, and vice versa.

RPDs were calculated where possible comparing the Shallow and Deep sample results. If both sample results were detected values, an RPD was calculated. Where both results (Shallow and Deep) were non-detects, or where one result was a detect and the other a non-detect with a reporting limit higher than the detect (i.e., an ambiguous comparison), no RPD was calculated. Where one result was a detect and the other a non-detect with reporting limit below the detected value, a minimum RPD was conservatively calculated using the reporting limit for the non-detect.

The one-sample Student's *t*-test is used to compare a single population mean to a specified value (a fixed value, remediation goal, hypothesized population mean, etc.). Requirements and directions for conducting the test are provided in Section 3.2.1.1 of USEPA (2006). In the present evaluation, the one-sample Student *t*-test was used in conjunction with the calculated RPD values to look for a consistent soil depth bias in the floodplain soil data. To do so, the mean RPD for a given analyte and location was contrasted against a hypothetical null (no effect) hypothesis of zero (i.e., that the Shallow and Deep results are, on average, equal). For each data set (analyte x location), all available RPD values were used in the one-sample *t*-test. In cases where two or fewer RPDs were available (due to a prevalence of non-detect values in the data set preventing the calculation of meaningful RPDs) no *t*-test was performed, since a minimum of three observations is required to conduct the test.

## **2.4 Statistical Methods – General Considerations and Assumption Checking**

Testing was performed at a statistical significance level of 0.05 (95 percent confidence). Any field duplicates were averaged prior to statistical calculations. For the purposes of the statistical evaluation, where censored data (non-detects) were present in a data set, the Kaplan-Meier (K-M) product limit estimation method was used to generate the mean and standard deviation values used in Student *t*-tests. Data sets with more than 50 percent non-detects were not tested using the Student *t*-test, but instead were tested using the WRS and Quantile tests. In the WRS tests, the reporting limit was used as a conservatively high concentration estimate when ranking censored data points. In the quantile test, all censored data were considered to be tied and below all detected values. If this resulted in any ambiguous comparisons (i.e., where J-qualified detected results were lower than the reporting limit for some non-detects), this was resolved on a case-by-case basis (by excluding the higher censored data and/or treating the low detects as non-detects) trying to maximize the number of data retained for the test. Very highly-censored datasets (containing more than 90 percent non-detects) were excluded from the statistical tests.

Prior to conducting Student *t*-tests, several data assumptions were first verified. These include identifying data distributions and potential statistical outliers. In order to conduct a two sample *t*-test, both Adjacent and Upstream data sets for each analyte need to have the same data distribution. In some cases, a specific data set could be described by two distributions (e.g., normal and gamma, or normal and lognormal). A common distribution for the Upstream and Adjacent data sets was selected appropriately to perform the Student *t*-test.

Initial screening was performed through the use of probability plots. On a probability plot, the observed values (e.g., analyte concentrations) are plotted against an expected probability for a hypothesized data distribution (e.g., normal, gamma, or log). If the data fall in a relatively straight line on a 45 degree angle,



then the data are well described by the given distribution (normal, gamma or lognormal) distribution. If a mixture of two or more distributions are present, probability plots may produce an “S” pattern. Suspected outliers are evident on probability plots as individual points falling far off the line formed by the other data, at the low end or high end of the plot. Probability plotting permits a quick visualization of data distribution patterns and outliers, that can be confirmed with additional formal tests.

A formal test of data distribution was conducted for each analyte and location group data set using USEPA’s ProUCL software<sup>1</sup>. The data distributions tested by ProUCL are, the priority order listed in USEPA (2015): (i) normal distribution; (ii) gamma distribution; and (iii) lognormal distribution. The specific statistical methods used to test data distributions include the Shapiro-Wilk W-test and Lilliefors Test for normal and lognormal distributions, and the Anderson-Darling and Kolmogorov Smirnov tests for gamma distributions. Details of these procedures are available in the ProUCL Technical Guide (USEPA, 2015). Where a particular data set is found to fit more than one of the tested distributions, the distribution highest on ProUCL’s priority list is used (i.e., normal, then gamma, then lognormal).

Formal tests for outliers, as implemented in ProUCL, are Dixon’s Extreme Value test (for up to 25 samples), and Rosner’s test (for more than 25 samples). Again, details of these procedures are available in the ProUCL Technical Guide (USEPA, 2015).

### **3. Results**

#### **3.1 2018 Sampling Event**

##### *Comparing Sample Depths*

As described above, potential differences in analyte concentrations by soil depth (Shallow and Deep) were assessed through the calculation of RPD values followed by a one-sample Student *t*-test evaluating if the mean RPD was statistically significantly different than zero. The results of these tests considering the 2018 data are presented in Table 3.

Considering the data from Adjacent samples, it is apparent that substantial variation in analyte concentrations is present between the two soil depths at individual locations, with RPD values varying between -192 percent and +197 percent. However, there does not appear to be a consistent bias comparing the data from Deep vs. Shallow samples. Almost all of the 2018 data sets tested (43 of 45) did not have a mean RPD that was statistically significantly different than zero (at P<0.05, i.e., 95 percent confidence). In two cases, potassium and selenium, a bias was observed with shallow samples having consistently higher concentrations than deep samples (i.e., mean RPDs of 18 percent and 15 percent, respectively). The remaining data sets (131) could not be tested due to the predominance of non-detect results.

The data from the Upstream samples exhibit less variation in RPDs, which allows for the detection of smaller differences in analyte concentrations by depth. For PCB-1254 and all but three of the metals (potassium, selenium and sodium) analyzed a difference was identified in which the mean RPD was found statistically significantly different than zero. For 19 metals, concentrations were greater in the Deep samples than in the

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<sup>1</sup> Current version 5.1.002. Freely available at <https://www.epa.gov/land-research/proucl-software>



Shallow samples. Calcium and magnesium had the reverse pattern, with the Shallow samples having consistently higher concentrations than the Deep samples. The Upstream sample SVOC data were more variable than the metals, with most mean RPDs not being statistically significantly different than zero. For the three cases where a significant difference was noted (2-methylnaphthalene, acenaphthylene and naphthalene), the mean RPD indicated lower concentrations in the Shallow samples than in the Deep samples.

Due to the absence of a consistent difference in concentration by depth, particularly in the Adjacent data, the analytical data from Shallow and Deep samples were pooled to conduct the Adjacent vs. Upstream comparisons below. This was preferred in order to increase the statistical power of the Adjacent vs. Upstream comparisons.

#### *Comparing Adjacent vs. Upstream*

The results from the evaluation conducted comparing 2018 Adjacent vs. Upstream data sets are provided in Table 4. Note that the large majority of VOC, pesticides, herbicides, and PCB data sets comprise non-detect results, therefore no tests were conducted for these groups (with the exception of PCB-1254). Only those data sets where comparisons were possible are include in Table 4.

Nineteen SVOCs, twenty-three metals and one PCB were subjected to group comparisons. Adjacent analyte concentrations were found to be above Upstream conditions for the following analytes:

2-Methylnaphthalene	Chrysene	Naphthalene
Anthracene	Dibenzofuran	Phenanthrene
Benzo(a)anthracene	Di-n-butylphthalate (DBP)	Pyrene
Benzo(b)fluoranthene	Fluorene	Calcium
Carbazole	Fluoranthene	Selenium

Additionally, it was found that concentrations of many metals (aluminum, barium, beryllium, chromium, cobalt, iron, manganese, mercury, nickel, potassium, thallium and vanadium) and Aroclor-1254 are lower in the Adjacent floodplain soils compared to the Upstream soils.

### **3.2 Combined 2018 and 2019 Sampling Events**

#### *Comparing Sample Depths*

As described above, potential differences in analyte concentrations by soil depth were assessed through the calculation of RPD values followed by an one-sample Student *t*-test evaluating if the mean RPD was statistically significantly different than zero. The results of these tests considering the combined 2018-2019 data are presented in Table 5.

Consistent with the Adjacent results for the 2018 data reported above, it is apparent that substantial variations in analyte concentrations are present for the two soil depths, with RPD values varying between -192 percent and +197 percent. Again, there does not appear to be a consistent bias comparing the data from Deep vs. Shallow samples. Almost all of the combined 2018-2019 data sets tested (43 of 45) did



not have a mean RPD that was statistically significantly different than zero (at P<0.05, i.e., 95 percent confidence). In two cases, benzo(b)fluoranthene and potassium, a bias was observed with shallow samples having consistently higher concentrations than deep samples (mean RPDs of 30 percent and 13 percent, respectively. The remaining data sets (49) could not be tested due to the predominance of non-detect results.

As found for the analysis of 2018 data reported above, due to the absence of a consistent difference in concentration by depth, the analytical data from Shallow and Deep samples were pooled to conduct the Adjacent vs. Upstream comparisons for the pooled 2018-2019 data sets below.

#### *Comparing Adjacent vs. Upstream*

The results from the evaluation conducted comparing the pooled 2018-2019 Adjacent vs. Upstream data are shown in Table 6. Note that since VOCs, pesticides, and herbicides were not analysed in 2019 they were not part of this evaluation. As well, the large majority of SVOC and PCB data sets were entirely non-detect results, and therefore no tests were conducted for these data sets. Only those data sets where comparisons were possible are include in Table 6.

Twenty-four SVOCs, twenty-three metals and two PCBs were subjected to group comparisons. Adjacent analyte concentrations were found to be above Upstream conditions for the following analytes:

2-Methylnaphthalene	Benzo(k)fluoranthene	Di-n-butylphthalate (DBP)	Phenanthrene
Anthracene	Carbazole	Fluoranthene	Pyrene
Benzo(a)anthracene	Chrysene	Fluorene	Calcium
Benzo(a)pyrene	Dibenzofuran	Naphthalene	Selenium
Benzo(b)fluoranthene			

Additionally, it was found that concentrations of most metals (aluminum, arsenic, barium, beryllium, cadmium, chromium, cobalt, copper, iron, lead, manganese, mercury, nickel, potassium, silver, thallium, vanadium, and zinc) and Aroclor-1254 are lower in the Adjacent floodplain soils compared to the Upstream soils. Note that the statistical results for selenium were inconsistent. With the Quantile test, only one of three quantiles tested (0.75) showed a significant difference Adjacent vs. Upstream. In contrast, the other two quantiles tested (0.5, 0.9) and the WRS test did not find a statistically significant difference.

## **4. Conclusions**

The results of the statistical evaluations performed analytical data for floodplain soil samples collected during 2018 and 2019 indicate that various PAHs are present at higher concentrations in Adjacent samples (located adjacent to OU1) than in Upstream soil samples. Additionally, concentrations of calcium and selenium appear elevated in Adjacent floodplain soils compared to Upstream. Conversely, the concentrations of many metals and PCB-1254 are lower in Adjacent floodplain soil samples compared to Upstream samples.

Based on comparisons of analyte concentrations present in soil at different depths (upper 6-inches and 6-inch to 2-feet intervals), some differences are noted in Upstream soil conditions with the Shallow soils



having lower concentrations of most metals (excepting calcium and magnesium) and three PAHs (2-methylnaphthalene, acenaphthylene and naphthalene). In contrast, the Adjacent floodplain soils adjacent OU1 either are more consistent and do not have substantial variation within these depth zones, or are subject to more variability between samples and thus any natural differences are masked in the statistical tests. However, based on the larger number of samples in the Adjacent group (with between 12 and 21 locations by analyte having data suitable for RPD calculations), it is expected that any consistent larger differences would have been identified by the statistical tests.

## **5. References**

USEPA, June 1994. Statistical Methods for Evaluating the Attainment of Cleanup Standards. Volume 3: Reference-Based Standards for Soil and Solid Media. Environmental Statistics and Information Division (2163), Office of Policy, Planning, and Evaluation. EPA 230-R-94-004.

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USEPA, January 2010. USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review. United States Environmental Protection Agency, Office of Superfund Remediation and Technology Innovation, Washington DC. EPA/540/R-10/011.

USEPA, October 2015. ProUCL Version 5.1.002 Technical Guide. United States Environmental Protection Agency, Office of Research and Development, Washington DC. EPA/600/R-07/041.



Source: Image ©2019 Google, 07/10/2018  
 Coordinate System: NAD 1983 StatePlane Ohio North FIPS 3401 Feet

figure 1

## GREAT MIAMI RIVER FLOODPLAIN SAMPLE LOCATIONS SOUTH DAYTON DUMP & LANDFILL SITE *Moraine, Ohio*



Table 1

**2018 Floodplain Soil Data - Upstream Samples**  
**South Dayton Dump and Landfill Site**  
**Moraine, Ohio**

Sample Location:	SS-201	SS-201	SS-202	SS-202	SS-203	SS-203	SS-204	SS-204	SS-205	SS-205	SS-206	SS-206	SS-207	SS-207	SS-208	SS-208		
Sample Date:	12/10/2018	12/10/2018	12/10/2018	12/10/2018	12/10/2018	12/10/2018	12/10/2018	12/10/2018	12/10/2018	12/10/2018	12/10/2018	12/10/2018	12/10/2018	12/10/2018	12/10/2018	12/10/2018		
Sample Depth:	0-0.5 ft BGS	0.5-2 ft BGS	0-0.5 ft BGS	0.5-2 ft BGS	0-0.5 ft BGS	0.5-2 ft BGS	0-0.5 ft BGS	0.5-2 ft BGS	0-0.5 ft BGS	0.5-2 ft BGS								
<b>Analyte</b>																		
<b>Volatiles</b>																		
1,1,1-Trichloroethane	µg/kg	0.72 U	0.74 U	1.1 U	0.87 U	0.98 U	0.91 U	0.99 U	0.89 U / 0.89 U	0.98 U	0.90 U	0.85 U	0.86 U	0.90 U	0.87 U	1.0 U	0.87 U / 0.88 U	
1,1,2,2-Tetrachloroethane	µg/kg	1.3 U	1.3 U	1.9 U	1.5 U	1.7 U	1.6 U	1.7 U	1.5 U / R	R	1.6 U	1.5 U	1.5 U	1.6 U	1.5 U	1.5 U	R	1.5 U / 1.5 U
1,1,2-Trichloroethane	µg/kg	1.0 U	1.0 U	1.5 U	1.2 U	1.3 U	1.3 U	1.4 U	1.2 U / 1.2 U	1.4 U	1.2 U	1.4 U	1.2 U / 1.2 U					
1,1-Dichloroethane	µg/kg	0.61 U	0.62 U	0.92 U	0.73 U	0.83 U	0.77 U	0.84 U	0.75 U / 0.75 U	0.83 U	0.76 U	0.72 U	0.73 U	0.76 U	0.74 U	0.86 U	0.74 U	0.75 U
1,1-Dichloroethene	µg/kg	0.79 U	0.81 U	1.2 U	0.96 U	1.1 U	1.0 U	1.1 U	0.97 U / 0.98 U	1.1 U	1.0 U	0.94 U	0.95 U	0.99 U	0.96 U	1.1 U	0.96 U	0.97 U
1,2,4-Trichlorobenzene	µg/kg	0.50 U	0.51 U	0.76 U	0.61 U	0.68 U	0.63 U	0.69 U	0.62 U / R	R	0.63 U	0.59 U	0.60 U	0.62 U	0.61 U	0.61 U	R	0.61 U / 0.62 U
1,2-Dibromo-3-chloropropane (DBCP)	µg/kg	3.2 U	3.2 U	4.8 U	3.8 U	4.3 U	4.0 U	4.4 U	3.9 U / R	R	4.0 U	3.7 U	3.8 U	3.9 U	3.8 U	3.8 U	R	3.8 U / 3.9 U
1,2-Dibromoethane (Ethylene dibromide)	µg/kg	0.68 U	0.69 U	1.0 U	0.82 U	0.92 U	0.85 U	0.93 U	0.83 U / 0.84 U	0.92 U	0.85 U	0.80 U	0.81 U	0.84 U	0.82 U	0.96 U	0.82 U	0.83 U
1,2-Dichlorobenzene	µg/kg	0.98 U	1.0 U	1.5 U	1.2 U	1.3 U	1.2 U	1.3 U	1.2 U / R	R	1.2 U	R	1.2 U / 1.2 U					
1,2-Dichloroethane	µg/kg	0.68 U	0.69 U	1.0 U	0.82 U	0.92 U	0.85 U	0.93 U	0.83 U / 0.84 U	0.92 U	0.85 U	0.80 U	0.81 U	0.84 U	0.82 U	0.96 U	0.82 U	0.83 U
1,2-Dichloropropane	µg/kg	0.75 U	0.76 U	1.1 U	0.90 U	1.0 U	0.94 U	1.0 U	0.92 U / 0.92 U	1.0 U	0.94 U	0.88 U	0.89 U	0.93 U	0.90 U	1.1 U	0.91 U	0.92 U
1,3-Dichlorobenzene	µg/kg	0.72 U	0.73 U	1.1 U	0.86 U	0.97 U	0.90 U	0.99 U	0.88 U / R	R	0.90 U	0.85 U	0.86 U	0.89 U	0.87 U	R	0.87 U	0.88 U
1,4-Dichlorobenzene	µg/kg	0.78 U	0.79 U	1.2 U	0.93 U	1.1 U	0.97 U	1.1 U	0.95 U / R	R	0.97 U	0.92 U	0.93 U	0.96 U	0.94 U	R	0.94 U	0.95 U
2-Butanone (Methyl ethyl ketone) (MEK)	µg/kg	3.1 U	3.2 U	4.7 U	3.8 U	4.2 U	3.9 U	4.3 U	3.8 U / 3.9 U	4.2 U	3.9 U	3.7 U	3.7 U	3.9 U	3.8 U	4.4 U	3.8 U / 3.8 U	
2-Hexanone	µg/kg	3.6 U	3.7 U	5.4 U	4.3 U	4.9 U	4.5 U	4.9 U	4.4 U / 4.4 U	4.9 U	4.5 U	4.2 U	4.3 U	4.5 U	4.3 U	5.1 U	4.4 U / 4.4 U	
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/kg	3.3 U	3.3 U	4.9 U	3.9 U	4.4 U	4.1 U	4.5 U	4.0 U / 4.0 U	4.4 U	4.1 U	3.9 U	3.9 U	4.1 U	3.9 U	4.6 U	4.0 U / 4.0 U	
Acetone	µg/kg	18 U	19 U	28 U	22 U	25 U	23 U	25 U	23 U / 23 U	25 U	23 U	22 U	22 U	23 U	22 U	26 U	22 U / 23 U	
Benzene	µg/kg	0.61 U	0.63 U	0.93 U	0.74 U	0.83 U	0.77 U	0.84 U	0.75 U / 0.76 U	0.83 U	0.77 U	0.73 U	0.73 U	0.76 U	0.74 U	0.87 U	0.74 U / 0.75 U	
Bromodichloromethane	µg/kg	0.60 U	0.61 U	0.90 U	0.72 U	0.81 U	0.75 U	0.82 U	0.73 U / 0.74 U	0.81 U	0.75 U	0.71 U	0.71 U	0.74 U	0.72 U	0.84 U	0.72 U / 0.73 U	
Bromoform	µg/kg	2.1 U	2.2 U	3.2 U	2.5 U	2.9 U	2.7 U	2.9 U	2.6 U / 2.6 U	2.9 U	2.6 U	2.5 U	2.5 U	2.6 U	2.6 U	3.0 U	2.6 U / 2.6 U	
Bromomethane (Methyl bromide)	µg/kg	0.87 U	0.89 U	1.3 U	1.0 U	1.2 U	1.1 U	1.2 U	1.1 U / 1.1 U	1.2 U	1.1 U	1.0 U	1.0 U	1.1 U	1.1 U	1.2 U	1.1 U / 1.1 U	
Carbon disulfide	µg/kg	1.0 U	1.0 U	1.5 U	1.2 U	1.4 U	1.3 U	1.4 U	1.3 U / 1.3 U	1.4 U	1.3 U	1.2 U	1.2 U	1.3 U	1.2 U	1.4 U	1.2 U / 1.3 U	
Carbon tetrachloride	µg/kg	2.9 U	2.9 U	4.3 U	3.4 U	3.9 U	3.6 U	3.9 U	3.5 U / 3.5 U	3.9 U	3.6 U	3.4 U	3.4 U	3.6 U	3.5 U	4.0 U	3.5 U / 3.5 U	
Chlorobenzene	µg/kg	0.81 U	0.82 U	1.2 U	0.97 U	1.1 U	1.0 U	1.1 U	0.99 U / 0.99 U	1.1 U	1.0 U	0.95 U	0.96 U	1.0 U	0.97 U	1.1 U	0.98 U / 0.99 U	
Chloroethane	µg/kg	1.1 U	1.1 U	1.6 U	1.3 U	1.5 U	1.3 U	1.5 U	1.3 U / 1.3 U	1.5 U	1.3 U	1.5 U	1.3 U / 1.3 U					
Chloroform (Trichloromethane)	µg/kg	0.69 U	0.71 U	1.0 U	0.83 U	0.94 U	0.87 U	0.95 U	0.85 U / 0.86 U	0.94 U	0.87 U	0.82 U	0.83 U	0.86 U	0.84 U	0.98 U	0.84 U / 0.85 U	
Chloromethane (Methyl chloride)	µg/kg	0.92 U	0.94 U	1.4 U	1.1 U	1.2 U	1.2 U	1.3 U	1.1 U / 1.1 U	1.2 U	1.1 U	1.3 U	1.1 U / 1.1 U					
cis-1,2-Dichloroethene	µg/kg	0.57 U	0.58 U	0.86 U	0.69 U	0.78 U	0.72 U	0.79 U	0.70 U / 0.71 U	0.78 U	0.72 U	0.68 U	0.68 U	0.71 U	0.69 U	0.81 U	0.69 U / 0.70 U	
cis-1,3-Dichloropropene	µg/kg	1.3 U	1.3 U	1.9 U	1.5 U	1.7 U	1.6 U	1.7 U	1.6 U / 1.6 U	1.7 U	1.6 U	1.5 U	1.5 U	1.6 U	1.5 U	1.8 U	1.5 U / 1.5 U	
Cyclohexane	µg/kg	1.2 U	1.2 U	1.8 U	1.5 U	1.6 U	1.5 U	1.7 U	1.5 U / 1.5 U	1.6 U	1.5 U	1.4 U	1.4 U	1.5 U	1.5 U	1.7 U	1.5 U / 1.5 U	
Dibromochloromethane	µg/kg	2.4 U	2.5 U	3.7 U	2.9 U	3.3 U	3.1 U	3.4 U	3.0 U / 3.0 U	3.3 U	3.1 U	2.9 U	2.9 U					

Table 1

**2018 Floodplain Soil Data - Upstream Samples**  
**South Dayton Dump and Landfill Site**  
**Moraine, Ohio**

Sample Location:	SS-201	SS-201	SS-202	SS-202	SS-203	SS-203	SS-204	SS-204	SS-205	SS-205	SS-206	SS-206	SS-207	SS-207	SS-208	SS-208	
Sample Date:	12/10/2018	12/10/2018	12/10/2018	12/10/2018	12/10/2018	12/10/2018	12/10/2018	12/10/2018	12/10/2018	12/10/2018	12/10/2018	12/10/2018	12/10/2018	12/10/2018	12/10/2018	12/10/2018	
Sample Depth:	0-0.5 ft BGS	0.5-2 ft BGS	0-0.5 ft BGS	0.5-2 ft BGS	0-0.5 ft BGS	0.5-2 ft BGS	0-0.5 ft BGS	0.5-2 ft BGS	0-0.5 ft BGS	0.5-2 ft BGS							
<b>Analyte</b>		<b>Units</b>															
Xylenes (total)		µg/kg	1.4 U	1.4 U	2.1 U	1.7 U	1.9 U	1.8 U	1.9 U	1.7 U / 1.7 U	1.9 U	1.7 U	1.6 U	1.7 U	1.7 U	2.0 U	1.7 U / 1.7 U
<b>Semi-Volatiles</b>																	
2,2'-Oxybis(1-chloropropane) (bis(2-Chloroisopropyl) ether)	µg/kg	11 U	11 U	13 U / 13 U	14 U	13 U	13 U	12 U	13 U	13 U	13 U	13 U / 13 U					
2,4,5-Trichlorophenol	µg/kg	79 U	78 U	90 U	87 U	92 U	89 U	91 U	89 U / 90 U	96 U	88 U	87 U	86 U	91 U	87 U	93 U	90 U / 89 U
2,4,6-Trichlorophenol	µg/kg	73 U	73 U	83 U	81 U	86 U	82 U	84 U	82 U / 83 U	89 U	82 U	80 U	80 U	85 U	81 U	86 U	83 U / 83 U
2,4-Dichlorophenol	µg/kg	50 U	50 U	57 U	56 U	59 U	57 U	58 U	57 U / 57 U	61 U	56 U	55 U	55 U	58 U	56 U	59 U	57 U / 57 U
2,4-Dimethylphenol	µg/kg	46 U	45 U	52 U	51 U	53 U	52 U	53 U	51 U / 52 U	56 U	51 U	50 U	50 U	53 U	50 U	54 U	52 U / 52 U
2,4-Dinitrophenol	µg/kg	160 U	160 U	180 U	180 U	190 U	180 U	190 U	180 U / 180 U	200 U	180 U	180 U	180 U	190 U	180 U	190 U	180 U / 180 U
2,4-Dinitrotoluene	µg/kg	71 U	70 U	81 U	78 U	83 U	80 U	81 U	80 U / 81 U	86 U	79 U	78 U	77 U	82 U	78 U	83 U	81 U / 80 U
2,6-Dinitrotoluene	µg/kg	64 U	63 U	73 U	71 U	75 U	72 U	74 U	72 U / 73 U	78 U	72 U	70 U	70 U	74 U	71 U	75 U	73 U / 72 U
2-Chloronaphthalene	µg/kg	16 U	16 U	18 U	18 U	19 U	18 U	18 U	18 U / 18 U	20 U	18 U	18 U	17 U	19 U	18 U	19 U	18 U / 18 U
2-Chlorophenol	µg/kg	11 U	11 U	13 U / 13 U	14 U	13 U	13 U	12 U	13 U	13 U	13 U	13 U / 13 U					
2-Methylnaphthalene	µg/kg	7.9 J	15 J	16 J	27	10 J	16 J	9.6 J	12 J / 14 J	11 J	16 J	4.3 J	2.4 U	10 J	22	13 J	25 / 11 J
2-Methylphenol	µg/kg	36 U	35 U	40 U	39 U	41 U	40 U	41 U	40 U / 40 U	43 U	40 U	39 U	39 U	41 U	39 U	42 U	40 U / 40 U
2-Nitroaniline	µg/kg	46 U	45 U	52 U	51 U	53 U	52 U	53 U	51 U / 52 U	56 U	51 U	50 U	50 U	53 U	50 U	54 U	52 U / 52 U
2-Nitrophenol	µg/kg	15 U	15 U	17 U	16 U	17 U	17 U	17 U	17 U / 17 U	18 U	17 U	16 U	16 U	17 U	16 U	17 U	17 U / 17 U
3&4-Methylphenol	µg/kg	33 U	33 U	38 U	37 U	39 U	37 U	38 U	37 U / 38 U	40 U	37 U	36 U	36 U	38 U	37 U	39 U	38 U / 37 U
3,3'-Dichlorobenzidine	µg/kg	49 U	49 U	56 U	54 U	57 U	55 U	56 U	55 U / 56 U	60 U	55 U	54 U	54 U	57 U	54 U	58 U	56 U / 55 U
3-Nitroaniline	µg/kg	56 U	56 U	64 U	62 U	65 U	63 U	64 U	63 U / 64 U	68 U	63 U	61 U	61 U	65 U	62 U	66 U	64 U / 63 U
4,6-Dinitro-2-methylphenol	µg/kg	92 U	91 U	100 U	100 U	110 U	100 U	110 U	100 U / 100 U	110 U	100 U	100 U	100 U	110 U	100 U	110 U	100 U / 100 U
4-Bromophenyl phenyl ether	µg/kg	16 U	16 U	18 U	18 U	19 U	18 U	18 U	18 U / 18 U	20 U	18 U	18 U	17 U	19 U	18 U	19 U	18 U / 18 U
4-Chloro-3-methylphenol	µg/kg	52 U	51 U	59 U	57 U	60 U	58 U	59 U	58 U / 58 U	63 U	58 U	56 U	56 U	60 U	57 U	60 U	59 U / 58 U
4-Chloroaniline	µg/kg	34 U	34 U	39 U	38 U	40 U	39 U	39 U	39 U / 39 U	42 U	38 U	38 U	37 U	40 U	38 U	40 U	39 U / 39 U
4-Chlorophenyl phenyl ether	µg/kg	16 U	16 U	18 U	18 U	19 U	18 U	18 U	18 U / 18 U	20 U	18 U	18 U	17 U	19 U	18 U	19 U	18 U / 18 U
4-Nitroaniline	µg/kg	69 U	68 U	78 U	76 U	80 U	77 U	79 U	77 U / 78 U	84 U	77 U	75 U	75 U	80 U	76 U	81 U	78 U / 77 U
4-Nitrophenol	µg/kg	110 U	110 U	120 U	120 U	130 U	120 U	120 U	120 U / 120 U	130 U	120 U	120 U	120 U	120 U	120 U	130 U	120 U / 120 U
Acenaphthene	µg/kg	22	38	19 J	29	14 J	14 J	9.6 J	13 J / 14 J	14 J	15 J	3.6 U	3.6 U	15 J	18 J	14 J	3.7 U / 3.7 U
Acenaphthylene	µg/kg	16 J	23	36	48	25	28	25	27 / 36	26	28	6.8 J	6.2 J	32	63	23	47 / 37
Acetophenone	µg/kg	13 U	12 U	14 U	14 U	15 U	14 U	14 U	14 U / 14 U	15 U	14 U	14 U	14 U	15 U	14 U	15 U	14 U / 14 U
Anthracene	µg/kg	71	130	65	79	40	39	36	36 / 41	44	42	7.7 J	6.9 J	49	68	44	52 / 40
Atrazine	µg/kg	41 U	41 U	47 U	45 U	48 U	46 U	47 U	46 U / 47 U	50 U	46 U	45 U	45 U	48 U	45 U	48 U	47 U / 46 U
Benzaldehyde	µg/kg	26 U	26 U	34 J	29 U	31 U	30 U	30 U	30 U / 30 U	85 J	29 U	29 U	29 U	46 J	29 U	31 U	30 U / 30 U
Benzo(a)anthracene	µg/kg	280	500	420	440	270	280	270	260 / 290	330	290	52	53	370	470	300	430 / 290
Benzo(a)pyrene	µg/kg	280	490	540	540	350	330	310	300 / 340	390	320	63	67	440	510	320	460 / 290
Benzo(b)fluoranthene	µg/kg	480	720	990	880	540	560	510	500 / 560	620	510	110	110	740	840	590	810 / 510
Benzo(g,h,i)perylene	µg/kg	190	350	300	300	270	310	240	220 / 260	310	240	54	59	360	380	300	390 / 270
Benzo(k)fluoranthene	µg/kg	170	340														

Table 1

**2018 Floodplain Soil Data - Upstream Samples**  
**South Dayton Dump and Landfill Site**  
**Moraine, Ohio**

Sample Location:	SS-201	SS-201	SS-202	SS-202	SS-203	SS-203	SS-204	SS-204	SS-205	SS-205	SS-206	SS-206	SS-207	SS-207	SS-208	SS-208	
Sample Date:	12/10/2018	12/10/2018	12/10/2018	12/10/2018	12/10/2018	12/10/2018	12/10/2018	12/10/2018	12/10/2018	12/10/2018	12/10/2018	12/10/2018	12/10/2018	12/10/2018	12/10/2018	12/10/2018	
Sample Depth:	0-0.5 ft BGS	0.5-2 ft BGS	0-0.5 ft BGS	0.5-2 ft BGS	0-0.5 ft BGS	0.5-2 ft BGS	0-0.5 ft BGS	0.5-2 ft BGS	0-0.5 ft BGS	0.5-2 ft BGS							
<b>Analyte</b>																	
Diethyl phthalate	µg/kg	36 U	35 U	40 U	39 U	41 U	40 U	41 U	40 U /40 U	43 U	40 U	39 U	39 U	41 U	39 U	42 U	40 U /40 U
Dimethyl phthalate	µg/kg	16 U	16 U	18 U	18 U	19 U	18 U	18 U	18 U /18 U	20 U	18 U	17 U	19 U	18 U	19 U	18 U /18 U	
Di-n-butylphthalate (DBP)	µg/kg	25 U	25 U	29 U	28 U	29 U	28 J	29 U	28 J /29 U	31 U	30 J	28 J	27 U	30 J	29 J	30 U	29 U /28 U
Di-n-octyl phthalate (DnOP)	µg/kg	32 U	32 U	36 U	35 U	37 U	36 U	37 U	36 U /36 U	39 U	36 U	35 U	37 U	35 U	38 U	36 U /36 U	
Fluoranthene	µg/kg	760	1300	1300	1100	640	560	570	550 /590	770	540	120	150	890	810	640	690 /560
Fluorene	µg/kg	21	37	20	26	12 J	14 J	10 J	12 J /14 J	15 J	15 J	3.4 U	3.4 U	16 J	18 J	3.7 U	21 /16 J
Hexachlorobenzene	µg/kg	3.3 U	3.2 U	3.7 U	3.6 U	3.8 U	3.7 U	3.7 U	3.7 U /3.7 U	4.0 U	3.6 U	3.6 U	3.8 U	3.6 U	3.8 UJJ	3.7 UJJ /3.7 UJJ	
Hexachlorobutadiene	µg/kg	14 U	14 U	16 U	15 U	16 U	15 U	16 U	15 U /16 U	17 U	15 U	15 U	16 U	15 U	16 U	16 U /15 U	
Hexachlorocyclopentadiene	µg/kg	71 U	R	81 U	78 U	83 U	R	81 U	80 U /81 U	86 U	79 U	78 U	77 U	R	78 U	R	81 UJJ /80 UJJ
Hexachloroethane	µg/kg	10 U	10 U	12 U	11 U	12 U	12 U	12 U	12 U /12 U	13 U	12 U	11 U	11 U	12 U	11 U	12 U	12 U /12 U
Indeno(1,2,3-cd)pyrene	µg/kg	170	290	270	270	240	250	220	200 /250	280	220	48	54	350	350	210	340 /220
Isophorone	µg/kg	14 U	14 U	16 U	15 U	16 U	15 U	16 U	15 U /16 U	17 U	15 U	15 U	16 U	15 U	16 U	16 U /15 U	
Naphthalene	µg/kg	2.8 U	11 J	16 J	22	11 J	16 J	9.3 J	11 J /11 J	9.3 J	13 J	3.0 U	3.0 U	12 J	18 J	8.9 J	21 /10 J
Nitrobenzene	µg/kg	15 U	15 U	17 U	16 U	17 U	17 U	17 U	17 U /17 U	18 U	17 U	16 U	17 U	16 U	17 U	17 U /17 U	
N-Nitrosodi-n-propylamine	µg/kg	13 U	12 U	14 U	14 U	15 U	14 U	14 U	14 U /14 U	15 U	14 U	14 U	15 U	14 U	15 U	14 U /14 U	
N-Nitrosodiphenylamine	µg/kg	14 U	14 U	16 U	15 U	16 U	15 U	16 U	15 U /16 U	17 U	15 U	15 U	16 U	15 U	16 U	16 U /15 U	
Pentachlorophenol	µg/kg	66 U	66 U	75 U	73 U	77 U	75 U	76 UJJ	74 UJJ /75 UJJ	81 UJJ	74 UJJ	73 UJJ	72 UJJ	R	73 UJJ	78 U	76 U /75 U
Phenanthrene	µg/kg	340	610	350	400	210	200	190	190 /200	260	230	43	53	280	260	230	340 /230
Phenol	µg/kg	9.2 U	9.1 U	10 U	10 U	11 U	10 U	11 U	10 U /10 U	11 U	10 U	10 U	10 U	11 U	10 U	11 U	10 U /10 U
Pyrene	µg/kg	490	820	780	630	480	470	480	460 /520	630	510	98	140	730	780	620	730 /570
<b>Metals</b>																	
Aluminum	mg/kg	6400	7200	9600	11000	9800	11000	10000	12000 /12000	10000	11000	11000	13000	9000	11000	9200	12000 /12000
Antimony	mg/kg	0.19 J	0.21 J	0.26 J	0.29 J	0.26 J	0.31 J	0.25 J	0.31 J /0.30 J	0.27 J	0.31 J	0.19 J	0.22 J	0.31 J	0.29 J	0.27 J	0.35 J /0.31 J
Arsenic	mg/kg	6.7	7.1	8.2	9.5	8.6	10	8.5	9.8 /10	8.3	9.8	7.6	9.7	8.1	9.9	8.3	10 /9.9
Barium	mg/kg	73	75	130	140	130	150	130	150 /150	130	140	150	140	130	150	130	150 /140
Beryllium	mg/kg	0.32	0.37	0.51	0.57	0.51	0.74	0.51	0.61 /0.63	0.54	0.62	0.65	0.77	0.51	0.64	0.59	0.77 /0.68
Cadmium	mg/kg	0.45	0.52	0.70	1.4	0.69	1.7	0.64	1.0 /1.1	0.66	1.5	0.33	0.35	0.63	1.9	0.69	2.0 /1.2
Calcium	mg/kg	82000	74000	63000	59000	66000	57000	65000	58000 /57000	69000	62000	31000	20000	69000	61000	68000	58000 /58000
Chromium	mg/kg	15	16	20	37	21	40	20	28 /30	20	36	15	18	19	44	20	45 /31
Cobalt	mg/kg	5.0	5.1	7.1	7.9	7.4	8.4	7.4	8.3 /8.5	7.3	8.0	13	12	7.0	8.1	7.1	8.3 /8.4
Copper	mg/kg	20	21	27	39	27	44	26	33 /34	27	41	15	17	26	50	27	54 /39
Iron	mg/kg	13000	14000	19000	20000	19000	21000	19000	22000 /22000	19000	21000	19000	23000	18000	20000	18000	21000 /21000
Lead	mg/kg	29	39	34	73	34	75	32	47 /52	31	64	27	26	30	75	32	77 /52
Magnesium	mg/kg	31000	32000	22000	22000	24000	22000	24000	21000 /21000	25000	23000	12000	8900	24000	22000	24000	22000 /22000
Manganese	mg/kg	350	370	540	560	580	590	560	590 /590	580	560	1000	1000	550	570	560	560 /620
Mercury	mg/kg	0.058 J	0.057 J	0.12	0.14 J	0.090 J	0.14	0.086 J	0.11 J /0.12 J	0.11 J	0.16	0.043 J	0.041 J	0.078 J	0.26	0.11 J	0.19 /0.15
Nickel	mg/kg	15	16	21	28	21	29	21	26 /28	21	27	17	19	20	29	20	30 /27
Potassium	mg/kg	870	1000	1													

Table 1

**2018 Floodplain Soil Data - Upstream Samples**  
**South Dayton Dump and Landfill Site**  
**Moraine, Ohio**

Sample Location:	SS-201	SS-201	SS-202	SS-202	SS-203	SS-203	SS-204	SS-204	SS-205	SS-205	SS-206	SS-206	SS-207	SS-207	SS-208	SS-208	
Sample Date:	12/10/2018	12/10/2018	12/10/2018	12/10/2018	12/10/2018	12/10/2018	12/10/2018	12/10/2018	12/10/2018	12/10/2018	12/10/2018	12/10/2018	12/10/2018	12/10/2018	12/10/2018	12/10/2018	
Sample Depth:	0-0.5 ft BGS	0.5-2 ft BGS	0-0.5 ft BGS	0.5-2 ft BGS	0-0.5 ft BGS	0.5-2 ft BGS	0-0.5 ft BGS	0.5-2 ft BGS	0-0.5 ft BGS	0.5-2 ft BGS							
<b>Analyte</b>																	
Aroclor-1221 (PCB-1221)	µg/kg	27 U	27 U	30 U	29 U	33 U	300 U	31 U	31 U /30 U	33 U	150 U	29 U	30 U	32 U	30 U	32 U	30 U /31 U
Aroclor-1232 (PCB-1232)	µg/kg	26 U	25 U	29 U	28 U	32 U	290 U	30 U	30 U /29 U	32 U	140 U	28 U	29 U	30 U	28 U	31 U	29 U /29 U
Aroclor-1242 (PCB-1242)	µg/kg	21 U	21 U	24 U	23 U	26 U	240 U	25 U	24 U /24 U	26 U	120 U	23 U	24 U	25 U	23 U	25 U	24 U /24 U
Aroclor-1248 (PCB-1248)	µg/kg	27 U	27 U	30 U	29 U	33 U	300 U	31 U	31 U /30 U	33 U	150 U	29 U	30 U	32 U	30 U	32 U	30 U /31 U
Aroclor-1254 (PCB-1254)	µg/kg	72	93 J	210	330	150	2800	160 J	210 /200	160 J	3300	28 U	29 U	110	1500	140 J	1500 J /460 J
Aroclor-1260 (PCB-1260)	µg/kg	25 U	24 U	28 U	27 U	30 U	280 U	29 U	28 U /28 U	30 U	130 U	27 U	27 U	29 U	27 U	29 U	28 U /28 U
<b>Pesticides</b>																	
4,4'-DDD	µg/kg	1.7 U	1.7 U	9.6 U	9.4 U	1.9 U	1.9 U	4.1 NJ	9.6 U /9.3 U	10 U	19 U	1.8 U	1.9 U	9.8 U	9.2 U	10 U	9.7 U /19 U
4,4'-DDE	µg/kg	1.8 U	2.0 J	9.8 U	9.6 U	4.5 J	1.9 U	2.0 U	9.8 U /9.5 U	11 U	19 U	1.9 U	1.9 U	10 U	9.4 U	10 U	9.9 U /19 U
4,4'-DDT	µg/kg	2.0 J	1.9 NJ	7.3 U	7.2 U	3.6 NJ	1.4 U	2.7 NJ	7.3 U /7.1 U	7.9 U	14 U	1.4 U	1.4 U	7.5 U	7.1 U	7.7 U	7.4 U /14 U
Aldrin	µg/kg	0.91 U	0.87 U	5.0 U	4.9 U	0.99 U	0.99 U	1.0 U	5.0 U /4.8 U	5.4 U	9.7 U	0.95 U	0.96 U	5.1 U	4.8 U	5.3 U	5.0 U /9.8 U
alpha-BHC	µg/kg	1.1 U	1.0 U	5.9 U	5.8 U	1.2 U	1.2 U	1.2 U	5.9 U /5.7 U	6.4 U	11 U	1.1 U	1.1 U	6.0 U	5.7 U	6.2 U	6.0 U /12 U
alpha-Chlordane	µg/kg	1.8 U	1.7 U	9.7 U	9.5 U	1.9 U	1.9 U	2.0 U	9.7 U /9.4 U	10 U	19 U	1.9 U	1.9 U	9.9 U	9.4 U	10 U	9.8 U /19 U
beta-BHC	µg/kg	2.0 U	1.9 U	11 U	11 U	2.2 U	2.2 U	2.3 U	11 U /11 U	12 U	22 U	2.1 U	2.2 U	11 U	11 U	12 U	11 U /22 U
delta-BHC	µg/kg	2.0 U	1.9 U	11 U	11 U	2.2 U	2.2 U	2.2 U	11 U /11 U	12 U	21 U	2.1 U	2.1 U	11 U	11 U	12 U	11 U /22 U
Dieldrin	µg/kg	1.3 U	1.2 U	7.1 U	7.0 U	1.4 U	1.4 U	1.5 U	7.1 U /6.9 U	7.7 U	14 U	1.4 U	1.4 U	7.3 U	6.9 U	7.5 U	7.2 U /14 U
Endosulfan I	µg/kg	1.4 U	1.4 U	7.8 U	7.6 U	1.5 U	1.5 U	1.6 U	7.8 U /7.5 U	8.4 U	15 U	1.5 U	1.5 U	7.9 U	7.5 U	8.2 U	7.9 U /15 U
Endosulfan II	µg/kg	1.7 U	1.7 U	9.6 U	9.4 U	1.9 U	1.9 U	2.0 U	9.6 U /9.3 U	10 U	19 U	1.8 U	1.9 U	9.8 U	9.2 U	10 U	9.7 U /19 U
Endosulfan sulfate	µg/kg	1.5 U	1.4 U	8.3 U	8.1 U	1.6 U	1.6 U	1.7 U	8.3 U /8.0 U	9.0 U	16 U	1.6 U	1.6 U	8.4 U	8.0 U	8.8 U	8.4 U /16 U
Endrin	µg/kg	2.2 U	2.1 U	12 U	12 U	2.4 U	2.4 U	2.5 U	12 U /12 U	13 U	24 U	2.4 U	2.4 U	13 U	12 U	13 U	12 U /24 U
Endrin aldehyde	µg/kg	1.5 U	1.5 U	8.5 U	8.3 U	1.7 U	2.0 NJ	1.7 U	8.5 U /8.2 U	9.2 U	17 U	1.6 U	1.6 U	8.6 U	8.2 U	9.0 U	8.6 U /17 U
Endrin ketone	µg/kg	1.0 U	1.0 U	5.8 U	5.7 U	1.1 U	1.1 U	1.2 U	5.8 U /5.6 U	6.2 U	11 U	1.1 U	1.1 U	5.9 U	5.6 U	6.1 U	5.8 U /11 U
gamma-BHC (lindane)	µg/kg	2.1 U	2.0 U	12 U	11 U	2.3 U	2.3 U	2.4 U	12 U /11 U	13 U	23 U	2.2 U	2.2 U	12 U	11 U	12 U	12 U /23 U
gamma-Chlordane	µg/kg	1.5 U	1.4 U	8.0 U	7.8 U	1.6 U	1.6 U	1.6 U	8.0 U /7.7 U	8.6 U	16 U	1.5 U	1.5 U	8.1 U	7.7 U	8.4 U	8.0 U /16 U
Heptachlor	µg/kg	1.9 U	1.8 U	10 U	10 U	2.0 U	2.0 U	2.1 U	10 U /9.9 U	11 U	20 U	2.0 U	2.0 U	10 U	9.9 U	11 U	10 U /20 U
Heptachlor epoxide	µg/kg	1.7 U	1.6 U	9.3 U	9.2 U	1.9 U	1.8 U	1.9 U	9.3 U /9.0 U	10 U	18 U	1.8 U	1.8 U	9.5 U	9.0 U	9.8 U	9.4 U /18 U
Methoxychlor	µg/kg	7.7 U	7.4 U	43 U	42 U	8.4 U	8.4 U	8.7 U	42 U /41 U	46 U	83 U	8.1 U	8.2 U	43 U	41 U	45 U	43 U /84 U
Toxaphene	µg/kg	29 U	28 U	160 U	160 U	32 U	32 U	33 U	160 U /160 U	170 U	320 U	31 U	31 U	160 U	160 U	170 U	160 U /320 U
<b>Herbicides</b>																	
2,4,5-T	µg/kg	14 U	14 U	17 U	16 U	17 U	17 U	17 U	17 U /16 U	18 U	16 U	16 U	17 U	16 U	17 U	17 U	17 U /17 U
2,4,5-TP (Silvex)	µg/kg	15 U	16 U	18 U	17 U	19 U	18 U	19 U	18 U /17 U	19 U	17 U	17 U	18 U	18 U	19 U	18 U	18 U /18 U
2,4-Dichlorophenoxyacetic acid (2,4-D)	µg/kg	54 U	54 U	63 U	59 U	65 U	64 U	66 U	63 U /61 U	67 U	60 U	61 U	64 U	62 U	65 U	63 U	62 U /62 U
<b>General Chemistry</b>																	
Cyanide (total)	mg/kg	0.24 U	0.20 U	0.26 U	0.24 U	0.23 U	0.23 U	0.29 J	0.22 U /0.23 U	0.29 U	0.26 J	0.23 U	0.26 U	0.27 U	0.22 U	0.27 J	0.26 U /0.25 U

Notes:

J - Estimated concentration.

NJ - Tentatively identified compound, estimated concentration.

R - Rejected.

U - Not detected at the associated reporting limit.

Table 2

**2018 and 2019 Floodplain Soil Data - Adjacent (to OU1) Samples**  
**South Dayton Dump and Landfill Site**  
**Moraine, Ohio**

Sample Location:	SS-164 8/6/2018	SS-164 8/6/2018	SS-165 8/6/2018	SS-165 8/6/2018	SS-166 8/7/2018	SS-166 8/7/2018	SS-167 8/7/2018	SS-167 8/7/2018	SS-168 8/7/2018	SS-168 8/7/2018	SS-169 8/7/2018	SS-169 8/7/2018	SS-170 8/7/2018	SS-170 8/7/2018	
Sample Date:	0-0.17 ft BGS	0.17-2.17 ft BGS													
Sample Depth:	0-0.17 ft BGS	0.17-2.17 ft BGS													
<b>Analyte</b>															
<b>Volatiles</b>															
1,1,1-Trichloroethane	µg/kg	0.87 U	1.2 U	1.2 U / 1.2 U	1.2 U	1.1 U	0.95 U	0.92 U	0.85 U	0.93 U	1.0 U	1.1 U	1.0 U	0.90 U	0.82 U
1,1,2,2-Tetrachloroethane	µg/kg	1.5 U	2.1 U	2.0 U / 2.1 U	2.1 U	1.8 U	1.7 U	1.6 U	1.5 U	1.6 U	1.8 U	2.0 U	1.8 U	1.6 U	1.4 U
1,1,2-Trichloroethane	µg/kg	1.2 U	1.7 U	1.6 U / 1.7 U	1.7 U	1.5 U	1.3 U	1.3 U	1.2 U	1.3 U	1.4 U	1.6 U	1.4 U	1.2 U	1.1 U
1,1-Dichloroethane	µg/kg	0.73 U	1.0 U	0.97 U / 1.0 U	1.0 U	0.89 U	0.80 U	0.77 U	0.72 U	0.79 U	0.86 U	0.95 U	0.86 U	0.76 U	0.69 U
1,1-Dichloroethene	µg/kg	0.95 U	1.3 U	1.3 U / 1.4 U	1.3 U	1.2 U	1.0 U	1.0 U	0.93 U	1.0 U	1.1 U	1.2 U	1.1 U	0.99 U	0.90 U
1,2,4-Trichlorobenzene	µg/kg	0.60 U	0.85 U	0.80 U / 0.86 U	0.84 U	0.73 U	0.66 U	0.64 U	0.59 U	0.65 U	0.71 U	2.1 U	1.3 U	0.63 U	0.57 U
1,2-Dibromo-3-chloropropane (DBCP)	µg/kg	3.8 U	5.3 U	5.1 U / 5.4 U	5.3 U	4.6 U	4.2 U	4.0 U	3.7 U	4.1 U	4.5 U	5.0 U	4.5 U	4.0 U	3.6 U
1,2-Dibromoethane (Ethylene dibromide)	µg/kg	0.81 U	1.1 U	1.1 U / 1.2 U	1.1 U	0.99 U	0.89 U	0.86 U	0.80 U	0.87 U	0.96 U	1.1 U	0.96 U	0.85 U	0.77 U
1,2-Dichlorobenzene	µg/kg	1.2 U	1.6 U	1.6 U / 1.7 U	1.6 U	1.4 U	1.3 U	1.2 U	1.2 U	1.3 U	1.4 U	1.5 U	1.4 U	1.2 U	1.1 U
1,2-Dichloroethane	µg/kg	0.82 U	1.1 U	1.1 U / 1.2 U	1.1 U	0.99 U	0.89 U	0.86 U	0.80 U	0.88 U	0.96 U	1.1 U	0.96 U	0.85 U	0.77 U
1,2-Dichloropropane	µg/kg	0.90 U	1.3 U	1.2 U / 1.3 U	1.2 U	1.1 U	0.98 U	0.95 U	0.88 U	0.97 U	1.1 U	1.2 U	1.1 U	0.93 U	0.85 U
1,3-Dichlorobenzene	µg/kg	0.86 U	1.2 U	1.1 U / 1.2 U	1.2 U	1.0 U	0.94 U	0.91 U	0.84 U	0.93 U	1.0 U	1.1 U	1.0 U	0.90 U	0.81 U
1,4-Dichlorobenzene	µg/kg	0.93 U	1.3 U	1.2 U / 1.3 U	1.3 U	1.1 U	1.0 U	0.99 U	0.91 U	1.0 U	1.1 U	1.2 J	1.1 U	0.97 U	0.88 U
2-Butanone (Methyl ethyl ketone) (MEK)	µg/kg	3.8 U	5.3 U	5.0 U / 5.3 U	5.2 U	4.6 U	4.1 U	4.0 U	3.7 U	4.0 U	4.4 U	4.9 U	4.4 U	3.9 U	3.5 U
2-Hexanone	µg/kg	4.3 U	6.0 U	5.7 U / 6.1 U	6.0 U	5.2 U	4.7 U	4.6 U	4.2 U	4.6 U	5.1 U	5.6 U	5.1 U	4.5 U	4.1 U
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/kg	3.9 U	5.5 U	5.2 U / 5.6 U	5.4 U	4.8 U	4.3 U	4.2 U	3.8 U	4.2 U	4.6 U	5.1 U	4.6 U	4.1 U	3.7 U
Acetone	µg/kg	92	31 U	29 U / 32 U	31 U	27 U	24 U	45	140	24 U	26 U	29 U	26 U	23 U	21 U
Benzene	µg/kg	0.74 U	1.0 U	0.98 U / 1.0 U	1.0 U	0.89 U	0.81 U	0.78 U	0.72 U	0.79 U	0.87 U	0.96 U	0.87 U	0.77 U	0.70 U
Bromodichloromethane	µg/kg	0.72 U	1.0 U	0.95 U / 1.0 U	0.99 U	0.87 U	0.78 U	0.76 U	0.70 U	0.77 U	0.84 U	0.93 U	0.85 U	0.75 U	0.68 U
Bromoform	µg/kg	2.5 U	3.6 U	3.4 U / 3.6 U	3.5 U	3.1 U	2.8 U	2.7 U	2.5 U	2.7 U	3.0 U	3.3 U	3.0 U	2.6 U	2.4 U
Bromomethane (Methyl bromide)	µg/kg	1.0 U	1.5 U	1.4 U / 1.5 U	1.4 U	1.3 U	1.1 U	1.1 U	1.0 U	1.1 U	1.2 U	1.4 U	1.2 U	1.1 U	0.99 U
Carbon disulfide	µg/kg	1.2 U	1.7 U	1.6 U / 1.7 U	1.7 U	1.5 U	1.3 U	1.3 U	1.2 U	1.3 U	1.4 U	1.6 U	1.4 U	1.3 U	1.2 U
Carbon tetrachloride	µg/kg	3.4 U	4.8 U	4.6 U / 4.9 U	4.8 U	4.2 U	3.8 U	3.6 U	3.4 U	3.7 U	4.0 U	4.5 U	4.1 U	3.6 U	3.2 U
Chlorobenzene	µg/kg	0.97 U	1.4 U	1.3 U / 1.4 U	1.3 U	1.2 U	1.1 U	1.0 U	0.95 U	1.0 U	1.1 U	1.3 U	1.1 U	1.0 U	0.91 U
Chloroethane	µg/kg	1.3 U	1.8 U	1.7 U / 1.8 U	1.8 U	1.6 U	1.4 U	1.4 U	1.3 U	1.4 U	1.5 U	1.7 U	1.5 U	1.3 U	1.2 U
Chloroform (Trichloromethane)	µg/kg	0.83 U	1.2 U	1.1 U / 1.2 U	1.2 U	1.0 U	0.91 U	0.88 U	0.82 U	0.89 U	0.98 U	1.1 U	0.98 U	0.87 U	0.79 U
Chloromethane (Methyl chloride)	µg/kg	1.1 U	1.5 U	1.5 U / 1.6 U	1.5 U	1.3 U	1.2 U	1.2 U	1.1 U	1.2 U	1.3 U	1.4 U	1.3 U	1.1 U	1.0 U
cis-1,2-Dichloroethene	µg/kg	0.69 U	0.96 U	0.91 U / 0.98 U	0.95 U	0.83 U	0.75 U	0.73 U	0.67 U	0.74 U	0.81 U	0.90 U	0.81 U	0.72 U	0.65 U
cis-1,3-Dichloropropene	µg/kg	1.5 U	2.1 U	2.0 U / 2.2 U	2.1 U	1.8 U	1.7 U	1.6 U	1.5 U	1.6 U	1.8 U	2.0 U	1.8 U	1.6 U	1.4 U
Cyclohexane	µg/kg	1.5 U	2.0 U	1.9 U / 2.1 U	2.0 U	1.8 U	1.6 U	1.5 U	1.4 U	1.6 U	1.7 U	1.9 U	1.7 U	1.5 U	1.4 U
Dibromochloromethane	µg/kg	2.9 U	4.1 U	3.9 U / 4.2 U	4.1 U	3.6 U	3.2 U	3.1 U	2.9 U	3.2 U	3.5 U	3.8 U	3.5 U	3.1 U	2.8 U
Dichlorodifluoromethane (CFC-12)	µg/kg	1.0 U	1.4 U	1.3 U / 1.4 U	1.4 U	1.2 U	1.1 U	1.1 U	0.98 U	1.1 U	1.2 U	1.3 U	1.2 U	1.0 U	0.94 U
Ethylbenzene	µg/kg	1.1 U	1.5 U	1.5 U / 1.6 U	1.5 U	1.3 U	1.2 U	1.2 U	1.1 U	1.2 U	1.3 U	1.4 U	1.3 U	1.1 U	1.0 U
Isopropyl benzene	µg/kg	0.88 U	1.2 U	1.2 U / 1.2 U	1.2 U	1.1 U	0.96 U	0.93 U	0.86 U	0.94 U	1.0 U	1.1 U	1.0 U	0.91 U	0.83 U
Methyl acetate	µg/kg	3.6 U	5.0 U	4.8 U / 5.1 U	5.0 U	4.4 U	3.9 U	3.8 U	3.5 U						

Table 2

**2018 and 2019 Floodplain Soil Data - Adjacent (to OU1) Samples**  
**South Dayton Dump and Landfill Site**  
**Moraine, Ohio**

Sample Location:	SS-164 8/6/2018	SS-164 8/6/2018	SS-165 8/6/2018	SS-165 8/6/2018	SS-166 8/7/2018	SS-166 8/7/2018	SS-167 8/7/2018	SS-167 8/7/2018	SS-168 8/7/2018	SS-168 8/7/2018	SS-169 8/7/2018	SS-169 8/7/2018	SS-170 8/7/2018	SS-170 8/7/2018
Sample Date:	0-0.17 ft BGS	0.17-2.17 ft BGS												
Analyte	Units													
2,4-Dichlorophenol	µg/kg	49 U	61 U	53 U /48 U	54 U	55 U	54 U	47 U	47 U	57 U	56 U	54 U	55 U	55 U
2,4-Dimethylphenol	µg/kg	44 U	56 U	48 U /44 U	49 U	50 U	49 U	43 U	43 U	52 U	51 U	49 U	50 U	50 U
2,4-Dinitrophenol	µg/kg	160 U	200 U	170 U /160 U	170 U	180 U	170 U	150 U	150 U	180 U	180 U	170 U	180 U	180 U
2,4-Dinitrotoluene	µg/kg	68 U	86 U	74 U /68 U	76 U	78 U	76 U	67 U	67 U	81 U	79 U	76 U	78 U	77 U
2,6-Dinitrotoluene	µg/kg	62 U	78 U	67 U /62 U	69 U	70 U	69 U	60 U	60 U	73 U	71 U	69 U	70 U	70 U
2-Chloronaphthalene	µg/kg	15 U	19 U	17 U /15 U	17 U	18 U	17 U	15 U	15 U	18 U	18 U	17 U	18 U	17 U
2-Chlorophenol	µg/kg	11 U	14 U	12 U /11 U	12 U	13 U	12 U	11 U	11 U	13 U	13 U	12 U	13 U	12 U
2-Methylnaphthalene	µg/kg	110	5.7 J	7.5 J /8.7	9.6	31	17	6.8 J	0.54 U	13	32	18	35	26
2-Methylphenol	µg/kg	34 U	43 U	37 U /34 U	38 U	39 U	38 U	33 U	33 U	40 U	39 U	38 U	39 U	39 U
2-Nitroaniline	µg/kg	44 U	56 U	48 U /44 U	49 U	50 U	49 U	43 U	43 U	52 U	51 U	49 U	50 U	50 U
2-Nitrophenol	µg/kg	14 U	18 U	16 U /14 U	16 U	16 U	16 U	14 U	14 U	17 U	16 U	16 U	16 U	16 U
3&4-Methylphenol	µg/kg	32 U	40 U	35 U /32 U	36 U	36 U	36 U	31 U	31 U	38 U	37 U	36 U	36 U	36 U
3,3'-Dichlorobenzidine	µg/kg	47 U	60 U	52 U /47 U	53 U	54 U	53 U	46 U	46 U	56 U	55 U	53 U	54 U	54 U
3-Nitroaniline	µg/kg	54 U	68 U	59 U /54 U	60 U	61 U	60 U	53 U	53 U	64 U	62 U	60 U	62 U	61 U
4,6-Dinitro-2-methylphenol	µg/kg	88 U	110 U	96 U /88 U	99 U	100 U	98 U	86 U	86 U	100 U	100 U	98 U	100 U	100 U
4-Bromophenyl phenyl ether	µg/kg	15 U	19 U	17 U /15 U	17 U	18 U	17 U	15 U	15 U	18 U	18 U	17 U	18 U	17 U
4-Chloro-3-methylphenol	µg/kg	50 U	63 U	54 U /49 U	55 U	56 U	55 U	48 U	48 U	59 U	57 U	55 U	57 U	56 U
4-Chloroaniline	µg/kg	33 U	42 U	36 U /33 U	37 U	38 U	37 U	32 U	32 U	39 U	38 U	37 U	38 U	37 U
4-Chlorophenyl phenyl ether	µg/kg	15 U	19 U	17 U /15 U	17 U	18 U	17 U	15 U	15 U	18 U	18 U	17 U	18 U	17 U
4-Nitroaniline	µg/kg	66 U	83 U	72 U /66 U	74 U	75 U	74 U	65 U	65 U	78 U	76 U	74 U	75 U	75 U
4-Nitrophenol	µg/kg	100 U	130 U	110 U /100 U	120 U	120 U	120 U	100 U	100 U	120 U				
Acenaphthene	µg/kg	61	1.1 U	5.4 J /6.0 J	35	28	0.93 U	8.5	0.82 U	10	12	26	60	31
Acenaphthylene	µg/kg	46	6.2 J	11 /11	12	40	23	11	5.5 J	37	44	46	50	35
Acetophenone	µg/kg	12 U	15 U	13 U /12 U	14 U	14 U	14 U	12 U	12 U	14 U				
Anthracene	µg/kg	120	6.6 J	20 /21	99	97	33	51	8.3	37	44	90	100	85
Atrazine	µg/kg	40 U	50 U	43 U /40 U	44 U	45 U	44 U	39 U	39 U	47 U	46 U	44 U	45 U	45 U
Benzaldehyde	µg/kg	25 U	32 U	28 U /25 U	28 U	49 J	28 U	25 U	25 U	30 U	29 U	28 U	29 U	29 U
Benzo(a)anthracene	µg/kg	570	39	100 /110	270	410	200	130	38	260	290	520	500	540
Benzo(a)pyrene	µg/kg	590	50	120 /120	230	450	210	110	43	320	340	590	570	610
Benzo(b)fluoranthene	µg/kg	1000	70	190 /200	370	820	310	160	50	630	600	1100	1000	1100
Benzo(g,h,i)perylene	µg/kg	440	36	86 /80	140	260	180	54	20	210	230	340	300	300
Benzo(k)fluoranthene	µg/kg	410	28	76 /73	150	260	160	71	23	290	280	410	400	410
Biphenyl (1,1-Biphenyl)	µg/kg	19 U	24 U	20 U /19 U	21 U	21 U	21 U	18 U	18 U	22 U	22 U	21 U	21 U	21 U
bis(2-Chloroethoxy)methane	µg/kg	13 U	17 U	14 U /13 U	15 U	15 U	15 U	13 U	13 U	16 U	15 U	15 U	15 U	15 U
bis(2-Chloroethyl)ether	µg/kg	13 U	17 U	14 U /13 U	15 U	15 U	15 U	13 U	13 U	16 U	15 U	15 U	15 U	15 U
bis(2-Ethylhexyl)phthalate (DEHP)	µg/kg	130	89 J	61 U /56 U	63 U	110	63 U	68 J	55 U	76 J	130	80 J	150	79 J
Butyl benzylphthalate (BBP)	µg/kg	24 U	31 U	26 U /24 U	27 U	28 U	27 U	24 U	24 U	29 U	28 J	27 U	28 U	27 U
Caprolactam	µg/kg	83 U	100 U	90 U /82 U	92 U	94 U	92 U	81 U	81 U	98 U	95 U	92 U	94 U	93 U
Carbazole	µg/kg	120	26 U	23 U /21 U	84	64	23 U	20 U	20 U	34 J	32 J	72	85	77
Chrysene	µg/kg	660	47	120 /120	270	470	230	120	40	380	360	680	610	700
Dibenz(a,h)anthracene	µg/kg	120	0.92 U	0.79 U /0.72 U	38	72	0.81 U	0.71 U	0.71 U	50	59	88	0.83 U	86
Dibenzofuran	µg/kg	68	18 U	16 U /14 U	30 J	31 J	16 U	14 U	14 U	17 U	16 U	22 J	30 J	25 J
Diethyl phthalate	µg/kg	34 U	43 U	37 U /34 U	38 U	39 U	38 U	33 U	33 U	40 U	39 U	38 U	39 U	39 U
Dimethyl phthalate	µg/kg	15 U	19 U	17 U /15 U	17 U	18 U	17 U	15 U	15 U	18 U	18 U	17 U	18 U	17 U
Di-n-butylphthalate (DBP)	µg/kg	36 J	59 J	37 J /24 U	34 J	34 J	27 U	41 J	43 J	30 J	44 J	27 U	29 J	36 J
Di-n-octyl phthalate (DnOP)	µg/kg	31 U	39 U	34 U /31 U	34 U	35 U	34 U	30 U	30 U	36 U	35 U	34 U	35 U	35 U
Fluoranthene	µg/kg	1300	79	220 /220	650	930	350	230	54	620	520	1300	1200	1300
Fluorene	µg/kg	48	0.74 U	6										

Table 2

**2018 and 2019 Floodplain Soil Data - Adjacent (to OU1) Samples**  
**South Dayton Dump and Landfill Site**  
**Moraine, Ohio**

Sample Location:	SS-164 8/6/2018	SS-164 8/6/2018	SS-165 8/6/2018	SS-165 8/6/2018	SS-166 8/7/2018	SS-166 8/7/2018	SS-167 8/7/2018	SS-167 8/7/2018	SS-168 8/7/2018	SS-168 8/7/2018	SS-169 8/7/2018	SS-169 8/7/2018	SS-170 8/7/2018	SS-170 8/7/2018	
Sample Date:	0-0.17 ft BGS	0.17-2.17 ft BGS													
Sample Depth:	0-0.17 ft BGS	0.17-2.17 ft BGS													
<b>Analyte</b>															
Naphthalene	µg/kg	67	5.0 J	5.5 J / 7.0 J	7.2 J	27	15	10	8.6 U	11	23	19	29	25	99
Nitrobenzene	µg/kg	14 U	18 U	16 U / 14 U	16 U	16 U	14 U	14 U	17 U	16 U	31 U				
N-Nitrosodi-n-propylamine	µg/kg	12 U	15 U	13 U / 12 U	14 U	14 U	12 U	12 U	14 U	26 U					
N-Nitrosodiphenylamine	µg/kg	13 U	17 U	14 U / 13 U	15 U	15 U	13 U	13 U	16 U	15 U	28 U				
Pentachlorophenol	µg/kg	64 U	81 U	70 U / 64 U	71 U	73 U	71 U	63 U	62 U	75 U	74 U	71 U	73 U	72 U	140 U
Phenanthrene	µg/kg	830	34	87 / 79	500	450	110	120	18	180	190	480	560	510	1400
Phenol	µg/kg	8.8 U	11 U	9.6 U / 8.8 U	9.9 U	10 U	9.8 U	8.6 U	8.6 U	10 U	10 U	9.8 U	10 U	10 U	19 U
Pyrene	µg/kg	1100	73	200 / 200	560	820	340	250	68	550	480	1100	1000	1100	1800
<b>Metals</b>															
Aluminum	mg/kg	6200	6000	4800 / 5200	5000	7500	8500	4900	3900	12000	14000	8600	11000	7600	9000
Antimony	mg/kg	0.63 J	0.27 J	0.33 J / 0.37 J	0.34 J	1.3 J	0.90 J	0.29 J	0.15 J	0.33 J	0.71 J	0.24 J	0.39 J	0.40 J	0.30 J
Arsenic	mg/kg	8.0	5.4	7.4 / 7.7	11	9.8	10	8.9	6.3	10	12	7.7	10	9.2	8.9
Barium	mg/kg	92	85	100 / 110	150	140	140	88	62	150	160	120	160	110	130
Beryllium	mg/kg	0.56	0.47	0.39 / 0.37	0.34	0.67	0.62	0.30	0.24 U	0.66	0.83	0.46	0.64	0.45	0.55
Cadmium	mg/kg	0.91	0.46	0.39 / 0.41	0.38	1.2	0.79	0.27	0.20	0.78	1.5	0.74	2.5	0.61	1.9
Calcium	mg/kg	74000	42000	85000 / 88000	100000	72000	78000	85000	78000	58000	50000	76000	68000	88000	69000
Chromium	mg/kg	19	12	10 / 11	11	18	16	9.3	7.6	23	36	21	54	19	43
Cobalt	mg/kg	5.4	4.6	4.1 / 4.4	4.4	5.8	6.6	3.9	3.3	9.1	9.7	6.6	8.5	6.2	7.3
Copper	mg/kg	35	15	14 / 15	14	42	33	13	9.7	31	46	26	60	23	45
Iron	mg/kg	14000	12000	11000 / 12000	12000	14000	16000	11000	8700	24000	25000	17000	22000	16000	18000
Lead	mg/kg	55	18	20 / 21	18	68	47	14	11	41	64	36	92	34	92
Magnesium	mg/kg	24000	18000	28000 / 27000	35000	24000	24000	23000	27000	20000	18000	24000	22000	25000	21000
Manganese	mg/kg	450	440	490 / 520	690	470	550	390	320	650	610	520	610	500	550
Mercury	mg/kg	0.079 J	0.028 U	0.036 J / 0.040 J	0.035 J	0.13	0.10 J	0.054 J	0.048 J	0.086 J	0.14	0.078 J	0.16	0.068 J	0.15
Nickel	mg/kg	17	12	10 / 11	11	17	18	10	9.1	26	32	20	32	18	28
Potassium	mg/kg	940	850	1000 / 1100	950	1200	1100	780	530	1900	1800	1200	1400	1100	1000
Selenium	mg/kg	1.1	0.82 J	0.87 J / 0.85 J	0.79 J	1.5	1.3	0.65 J	0.49 J	1.6	1.6	1.3	1.4	1.2	1.3
Silver	mg/kg	0.38	0.13 J	0.067 J / 0.074 J	0.060 J	0.34	0.25	0.059 J	0.036 J	0.42	0.74	0.39	1.3	0.28	0.97
Sodium	mg/kg	93 J	82 J	95 J / 94 J	130 J	93 J	89 J	87 J	89 J	89 J	88 J	100 J	96 J	100 J	94 J
Thallium	mg/kg	0.20	0.16 J	0.15 J / 0.15 J	0.15 J	0.28	0.27	0.11 J	0.18 J	0.40	0.49	0.30	0.40	0.28	0.33
Vanadium	mg/kg	17	16	14 / 15	15	20	21	13	12	28	33	21	27	21	22
Zinc	mg/kg	91	49	55 / 59	50	140	110	35	28	120	150	100	180	91	140
<b>PCBs</b>															
Aroclor-1016 (PCB-1016)	µg/kg	25 U	30 U	25 U / 25 U	27 U	28 U	26 U	25 U	23 U	29 U	27 U	27 U	270 U	27 U	130 U
Aroclor-1221 (PCB-1221)	µg/kg	27 U	33 U	28 U / 27 U	29 U	31 U	28 U	27 U	25 U	32 U	30 U	30 U	300 U	29 U	150 U
Aroclor-1232 (PCB-1232)	µg/kg	26 U	31 U	26 U / 26 U	28 U	30 U	27 U	26 U	24 U	30 U	28 U	29 U	290 U	28 U	140 U
Aroclor-1242 (PCB-1242)	µg/kg	22 U	26 U	22 U / 22 U	23 U	24 U	23 U	21 U	20 U	25 U	23 U	24 U	240 U	23 U	120 U
Aroclor-1248 (PCB-1248)	µg/kg	27 U	33 U	28 U / 27 U	29 U	31 U	28 U	27 U	25 U	32 U	30 U	30 U	4600	29 U	150 U
Aroclor-1254 (PCB-1254)	µg/kg	280	57 J	26 U / 26 U	28 U	95	39 J	26 U	24 U	56 J	440	110	290 U	79	860
Aroclor-1260 (PCB-1260)	µg/kg	25 U	30 U	25 U / 25 U	27 U	28 U	26 U	25 U	23 U	29 U	27 U	27 U	270 U	27 U	13

Table 2

**2018 and 2019 Floodplain Soil Data - Adjacent (to OU1) Samples**  
**South Dayton Dump and Landfill Site**  
**Moraine, Ohio**

Sample Location:	SS-164 8/6/2018	SS-164 8/6/2018	SS-165 8/6/2018	SS-165 8/6/2018	SS-166 8/7/2018	SS-166 8/7/2018	SS-167 8/7/2018	SS-167 8/7/2018	SS-168 8/7/2018	SS-168 8/7/2018	SS-169 8/7/2018	SS-169 8/7/2018	SS-170 8/7/2018	SS-170 8/7/2018	
Sample Date:	0-0.17 ft BGS	0.17-2.17 ft BGS													
Sample Depth:	0-0.17 ft BGS	0.17-2.17 ft BGS													
<b>Analyte</b>															
Endosulfan II	µg/kg	8.5 U	2.0 U	1.7 U / 1.7 U	1.8 U	1.9 U	R	1.7 U	1.6 U	2.0 U	1.8 U	1.8 U	18 U	1.8 U	9.0 U
Endosulfan sulfate	µg/kg	7.3 U	1.7 U	1.5 U / 1.5 U	1.6 U	1.6 U	R	1.4 U	1.4 U	1.7 U	2.9 J	1.6 U	16 U	1.6 U	7.8 U
Endrin	µg/kg	11 U	2.6 U	2.2 U / 2.2 U	2.3 U	2.4 U	R	2.1 U	2.0 U	2.5 U	2.3 U	2.4 U	24 U	2.3 U	12 U
Endrin aldehyde	µg/kg	8.9 J	1.8 U	1.5 U / 1.5 U	1.6 U	1.7 U	R	1.5 U	1.4 U	2.0 NJ	1.6 U	1.6 U	16 U	1.6 U	8.0 U
Endrin ketone	µg/kg	5.1 U	1.2 U	1.0 U / 1.0 U	1.1 U	1.1 U	1.1 UJ	1.0 U	0.94 U	1.2 U	1.1 U	1.1 U	11 U	1.1 U	5.4 U
gamma-BHC (lindane)	µg/kg	10 U	2.4 U	2.1 U / 2.0 U	2.2 U	2.3 U	R	2.0 U	1.9 U	2.4 U	2.2 U	2.2 U	29 J	2.2 U	11 U
gamma-Chlordane	µg/kg	7.0 U	1.7 U	1.4 U / 1.4 U	1.5 U	1.6 U	R	1.4 U	1.3 U	1.6 U	1.5 U	1.5 U	15 U	1.5 U	7.5 U
Heptachlor	µg/kg	9.0 U	2.1 U	1.8 U / 1.8 U	1.9 U	2.0 U	1.9 UJ	1.8 U	1.7 U	2.1 U	1.9 U	2.0 U	20 U	1.9 U	9.6 U
Heptachlor epoxide	µg/kg	8.2 U	2.0 U	1.7 U / 1.6 U	1.8 U	1.8 U	1.7 UJ	1.6 U	1.5 U	1.9 U	2.8 NJ	1.8 U	18 U	1.8 U	8.8 U
Methoxychlor	µg/kg	37 U	8.9 U	7.6 U / 7.5 U	8.0 U	8.4 U	R	7.3 U	6.9 U	8.7 U	8.1 U	8.2 U	82 U	8.0 U	40 U
Toxaphene	µg/kg	140 U	34 U	29 U / 29 U	30 U	32 U	30 U	28 U	26 U	33 U	31 U	31 U	310 U	30 U	150 U
<b>Herbicides</b>															
2,4,5-T	µg/kg	15 U	18 U	16 U / 15 U	17 U	16 U	16 U	14 U	14 U	17 U	17 U	17 U	16 U	16 U	16 U
2,4,5-TP (Silvex)	µg/kg	16 U	20 U	17 U / 16 U	18 U	17 U	17 U	15 U	15 U	18 U	19 U	18 U	73 J	17 U	17 U
2,4-Dichlorophenoxyacetic acid (2,4-D)	µg/kg	55 U	69 U	61 U / 56 U	62 U	60 U	60 U	52 U	52 U	64 U	65 U	63 U	61 U	60 U	58 U
<b>General Chemistry</b>															
Cyanide (total)	mg/kg	0.19 U	0.26 U	0.22 U / 0.22 U	0.24 U	0.27 J	0.24 U	0.19 U	0.20 U	0.23 U	0.25 U	0.22 U	0.22 U	0.22 U	0.22 U

Notes:

J - Estimated concentration.

NJ - Tentatively identified compound, estimated concentration.

R - Rejected.

U - Not detected at the associated reporting limit.

JJ - Not detected; associated reporting limit is estimated.

Table 2

**2018 and 2019 Floodplain Soil Data - Adjacent (to OU1) Samples**  
**South Dayton Dump and Landfill Site**  
**Moraine, Ohio**

Sample Location:	SS-171	SS-171	SS-172	SS-172	SS-173	SS-173	SS-174	SS-174	SS-175	SS-175	SS-178	SS-178	SS-179	SS-179	SS-180
Sample Date:	8/7/2018	8/7/2018	8/7/2018	8/7/2018	8/8/2018	8/8/2018	8/8/2018	8/8/2018	8/8/2018	8/8/2018	11/14/2019	11/14/2019	11/14/2019	11/14/2019	11/14/2019
Sample Depth:	0-0.17 ft BGS	0.17-2.17 ft BGS	0-0.17 ft BGS	0.17-2.17 ft BGS	0-0.5 ft BGS	0.5-2 ft BGS	0-0.5 ft BGS	0.5-2 ft BGS	0-0.5 ft BGS						
<b>Analyte</b>															Units
<b>Volatiles</b>															
1,1,1-Trichloroethane	µg/kg	0.97 U	1.0 U	0.99 U	0.89 U	0.87 U	0.94 U	0.92 U	0.83 U / 0.88 U	0.98 U	0.88 U	--	--	--	--
1,1,2-Tetrachloroethane	µg/kg	1.7 U	1.8 U	1.7 U	1.5 U	1.5 U	1.6 U	1.6 U	1.5 U / 1.5 U	1.7 U	1.5 U	--	--	--	--
1,1,2-Trichloroethane	µg/kg	1.3 U	1.4 U	1.4 U	1.2 U	1.2 U	1.3 U	1.3 U	1.1 U / 1.2 U	1.4 U	1.2 U	--	--	--	--
1,1-Dichloroethane	µg/kg	0.82 U	0.85 U	0.84 U	0.75 U	0.73 U	0.80 U	0.78 U	0.70 U / 0.74 U	0.83 U	0.74 U	--	--	--	--
1,1-Dichloroethene	µg/kg	1.1 U	1.1 U	1.1 U	0.98 U	0.95 U	1.0 U	1.0 U	0.92 U / 0.97 U	1.1 U	0.97 U	--	--	--	--
1,2,4-Trichlorobenzene	µg/kg	0.68 U	0.71 U	0.69 U	0.62 U	0.60 U	0.66 U	0.64 U	0.58 U / 0.61 U	0.68 U	0.61 U	--	--	--	--
1,2-Dibromo-3-chloropropane (DBCP)	µg/kg	4.3 U	4.4 U	4.4 U	3.9 U	3.8 U	4.2 U	4.1 U	3.7 U / 3.9 U	4.3 U	3.9 U	--	--	--	--
1,2-Dibromoethane (Ethylene dibromide)	µg/kg	0.91 U	0.95 U	0.93 U	0.83 U	0.81 U	0.89 U	0.87 U	0.78 U / 0.83 U	0.92 U	0.82 U	--	--	--	--
1,2-Dichlorobenzene	µg/kg	1.3 U	1.4 U	1.3 U	1.2 U	1.2 U	1.3 U	1.3 U	1.1 U / 1.2 U	1.3 U	1.2 U	--	--	--	--
1,2-Dichloroethane	µg/kg	0.92 U	0.95 U	0.93 U	0.84 U	0.81 U	0.89 U	0.87 U	0.78 U / 0.83 U	0.92 U	0.83 U	--	--	--	--
1,2-Dichloropropane	µg/kg	1.0 U	1.0 U	1.0 U	0.92 U	0.90 U	0.98 U	0.96 U	0.86 U / 0.91 U	1.0 U	0.91 U	--	--	--	--
1,3-Dichlorobenzene	µg/kg	0.97 U	1.0 U	0.99 U	0.88 U	0.86 U	0.94 U	0.92 U	0.83 U / 0.87 U	0.98 U	0.87 U	--	--	--	--
1,4-Dichlorobenzene	µg/kg	1.0 U	1.1 U	1.1 U	0.96 U	0.93 U	1.0 U	0.99 U	0.89 U / 0.95 U	1.1 U	0.94 U	--	--	--	--
2-Butanone (Methyl ethyl ketone) (MEK)	µg/kg	4.2 U	4.4 U	4.3 U	3.8 U	3.8 U	4.1 U	4.0 U	3.6 U / 3.8 U	4.3 U	3.8 U	--	--	--	--
2-Hexanone	µg/kg	4.9 U	5.0 U	4.9 U	4.4 U	4.3 U	4.7 U	4.6 U	4.1 U / 4.4 U	4.9 U	4.4 U	--	--	--	--
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/kg	4.4 U	4.6 U	4.5 U	4.0 U	3.9 U	4.3 U	4.2 U	3.8 U / 4.0 U	4.4 U	4.0 U	--	--	--	--
Acetone	µg/kg	25 U	26 U	25 U	23 U	22 J	64	24 U	21 U / 38	25 U	22 U	--	--	--	--
Benzene	µg/kg	0.83 U	0.86 U	0.84 U	0.76 U	0.74 U	0.80 U	0.79 U	0.71 U / 0.75 U	0.83 U	0.75 U	--	--	--	--
Bromodichloromethane	µg/kg	0.81 U	0.84 U	0.82 U	0.74 U	0.72 U	0.78 U	0.77 U	0.69 U / 0.73 U	0.81 U	0.73 U	--	--	--	--
Bromoform	µg/kg	2.9 U	3.0 U	2.9 U	2.6 U	2.5 U	2.8 U	2.7 U	2.4 U / 2.6 U	2.9 U	2.6 U	--	--	--	--
Bromomethane (Methyl bromide)	µg/kg	1.2 U	1.2 U	1.2 U	1.1 U	1.0 U	1.1 U	1.1 U	1.0 U / 1.1 U	1.2 U	1.1 U	--	--	--	--
Carbon disulfide	µg/kg	1.4 U	1.4 U	1.4 U	1.3 U	1.2 U	1.3 U	1.3 U	1.2 U / 1.2 U	1.4 U	1.2 U	--	--	--	--
Carbon tetrachloride	µg/kg	3.9 U	4.0 U	3.9 U	3.5 U	3.4 U	3.7 U	3.7 U	3.3 U / 3.5 U	3.9 U	3.5 U	--	--	--	--
Chlorobenzene	µg/kg	1.1 U	1.1 U	1.1 U	0.99 U	0.97 U	1.1 U	1.0 U	0.93 U / 0.98 U	1.1 U	0.98 U	--	--	--	--
Chloroethane	µg/kg	1.4 U	1.5 U	1.5 U	1.3 U	1.3 U	1.4 U	1.4 U	1.2 U / 1.3 U	1.5 U	1.3 U	--	--	--	--
Chloroform (Trichloromethane)	µg/kg	0.94 U	0.97 U	0.95 U	0.85 U	0.83 U	0.91 U	0.89 U	0.80 U / 0.84 U	0.94 U	0.84 U	--	--	--	--
Chloromethane (Methyl chloride)	µg/kg	1.2 U	1.3 U	1.3 U	1.1 U	1.1 U	1.2 U	1.2 U	1.1 U / 1.1 U	1.2 U	1.1 U	--	--	--	--
cis-1,2-Dichloroethene	µg/kg	0.77 U	0.80 U	0.79 U	0.70 U	0.69 U	0.75 U	0.73 U	0.66 U / 0.70 U	0.78 U	0.70 U	--	--	--	--
cis-1,3-Dichloropropene	µg/kg	1.7 U	1.8 U	1.7 U	1.6 U	1.5 U	1.7 U	1.6 U	1.5 U / 1.5 U	1.7 U	1.5 U	--	--	--	--
Cyclohexane	µg/kg	1.6 U	1.7 U	1.7 U	1.5 U	1.5 U	1.6 U	1.5 U	1.4 U / 1.5 U	1.6 U	1.5 U	--	--	--	--
Dibromochloromethane	µg/kg	3.3 U	3.4 U	3.4 U	3.0 U	2.9 U	3.2 U	3.1 U	2.8 U / 3.0 U	3.3 U	3.0 U	--	--	--	--
Dichlorodifluoromethane (CFC-12)	µg/kg	1.1 U	1.2 U	1.1 U	1.0 U	1.0 U	1.1 U	1.1 U	0.96 U / 1.0 U	1.1 U	1.0 U	--	--	--	--
Ethylbenzene	µg/kg	1.2 U	1.3 U	1.3 U	1.1 U	1.1 U	1.2 U	1.2 U	1.1 U / 1.1 U	1.3 U	1.1 U	--	--	--	--
Isopropyl benzene	µg/kg	0.99 U	1.0 U	1.0 U	0.90 U	0.88 U	0.96 U	0.94 U	0.84 U / 0.89 U	0.99 U	0.89 U	--	--	--	--
Methyl acetate	µg/kg	4.0 U	4.2 U	4.1 U	3.7 U	3.6 U	3.9 U	3.8 U	3.4 U / 3.6 U	4.1 U	3.6 U	--	--	--	--
Methyl cyclohexane	µg/kg	1.5 U	1.5 U	1.5 U	1.3 U	1.3 U	1.4 U	1.4 U	1.2 U / 1.3 U	1.5 U	1.3 U	--	--	--	--
Methyl tert butyl ether (MTBE)	µg/kg	0.97 U	1.0 U	0.99 U	0.89 U	0.87 U	0.94 U	0.92 U	0.83 U / 0.88 U	0.98 U	0.88 U	--	--	--	--
Methylene chloride	µg/kg	14 U	15 U	15 U	21 J	13 U	14 U	14 U	12 U / 13 U	14 U	13 U	--	--	--	--
Styrene	µg/kg	1.4 U	1.4 U	1.4 U	1.3 U	1.2 U	1.3 U	1.3 U	1.2 U / 1.2 U	1.4 U	1.2 U	--	--	--	--
Tetrachloroethene	µg/kg	0.87 U	0.90 U	0.88 U	0.79 U	0.77 U	0.84 U	0.82 U	0.74 U / 0.78 U	0.87 U	0.78 U	--	--	--	--
Toluene	µg/kg	0.92 U	0.95 U	0.93 U	0.84 U	0.82 U	0.89 U	0.87 U	0.78 U / 0.83 U	0.92 U	0.83 U	--	--	--	

Table 2

**2018 and 2019 Floodplain Soil Data - Adjacent (to OU1) Samples**  
**South Dayton Dump and Landfill Site**  
**Moraine, Ohio**

Sample Location:	SS-171 8/7/2018 0-0.17 ft BGS	SS-171 8/7/2018 0.17-2.17 ft BGS	SS-172 8/7/2018 0-0.17 ft BGS	SS-172 8/7/2018 0.17-2.17 ft BGS	SS-173 8/8/2018 0-0.17 ft BGS	SS-173 8/8/2018 0.17-2.17 ft BGS	SS-174 8/8/2018 0-0.17 ft BGS	SS-174 8/8/2018 0.17-2.17 ft BGS	SS-175 8/8/2018 0-0.17 ft BGS	SS-175 8/8/2018 0.17-2.17 ft BGS	SS-178 11/14/2019 0-0.5 ft BGS	SS-178 11/14/2019 0.5-2 ft BGS	SS-179 11/14/2019 0-0.5 ft BGS	SS-179 11/14/2019 0.5-2 ft BGS	SS-179 11/14/2019 0-0.5 ft BGS	SS-180 11/14/2019 0-0.5 ft BGS	
Sample Date:																	
Sample Depth:																	
Analyte	Units																
2,4-Dichlorophenol	µg/kg	110 U	200 U	53 U	53 U	100 U	48 U	110 U	100 U /100 U	220 U	53 U	53 U	60 U	47 U	49 U	110 U	
2,4-Dimethylphenol	µg/kg	98 U	180 U	48 U	48 U	94 U	44 U	98 U	94 U /94 U	200 U	48 U	49 U	55 U	43 U	44 U	100 U	
2,4-Dinitrophenol	µg/kg	350 U	650 U	170 U	170 U	330 U	160 U	350 U	330 U /330 U	710 U	170 U	170 U	190 U	150 U	150 U	360 U	
2,4-Dinitrotoluene	µg/kg	150 U	280 U	75 U	75 U	150 U	68 U	150 U	150 U /150 U	310 U	75 U	75 U	85 U	67 U	68 U	160 U	
2,6-Dinitrotoluene	µg/kg	140 U	260 U	68 U	68 U	130 U	62 U	140 U	130 U /130 U	280 U	68 U	68 U	77 U	60 U	62 U	140 U	
2-Chloronaphthalene	µg/kg	34 U	64 U	17 U	17 U	33 U	15 U	34 U	33 U /33 U	70 U	17 U	17 U	19 U	15 U	15 U	36 U	
2-Chlorophenol	µg/kg	25 U	46 U	12 U	12 U	24 U	11 U	25 U	24 U /24 U	50 U	12 U	12 U	14 U	11 U	11 U	25 U	
2-Methylnaphthalene	µg/kg	29	42	13	24	33	34	15 J	16 /21	27 J	11	49	8.9 J	6.1 J	9.4 J	33 J	
2-Methylphenol	µg/kg	76 U	140 U	38 U	38 U	73 U	34 U	76 U	73 U /73 U	150 U	38 U	38 U	42 U	33 U	34 U	79 U	
2-Nitroaniline	µg/kg	98 U	180 U	48 U	48 U	94 U	44 U	98 U	94 U /94 U	200 U	48 U	49 U	55 U	43 U	44 U	100 U	
2-Nitrophenol	µg/kg	32 U	59 U	16 U	16 U	31 U	14 U	32 U	31 U /31 U	65 U	16 U	16 U	18 U	14 U	14 U	33 U	
3&4-Methylphenol	µg/kg	71 U	130 U	35 U	35 U	68 U	32 U	71 U	68 U /68 U	140 U	35 U	35 U	40 U	31 U	32 U	74 U	
3,3'-Dichlorobenzidine	µg/kg	110 U	200 U	52 U	52 U	100 U	47 U	110 U	100 U /100 U	210 U	52 U	52 U	59 U	46 U	47 U	110 U	
3-Nitroaniline	µg/kg	120 U	220 U	59 U	59 U	120 U	54 U	120 U	120 U /120 U	240 U	59 U	60 U	67 U	53 U	54 U	120 U	
4,6-Dinitro-2-methylphenol	µg/kg	200 U	370 U	97 U	97 U	190 U	88 U	200 U	190 U /190 U	400 U	97 U	97 U	110 U	86 U	88 U	200 U	
4-Bromophenyl phenyl ether	µg/kg	34 U	64 U	17 U	17 U	33 U	15 U	34 U	33 U /33 U	70 U	17 U	17 U	19 U	15 U	15 U	36 U	
4-Chloro-3-methylphenol	µg/kg	110 U	210 U	54 U	54 U	110 U	49 U	110 U	110 U /110 U	220 U	54 U	55 U	61 U	49 U	50 U	110 U	
4-Chloroaniline	µg/kg	74 U	140 U	36 U	36 U	71 U	33 U	74 U	71 U /71 U	150 U	36 U	36 U	41 U	32 U	33 U	76 U	
4-Chlorophenyl phenyl ether	µg/kg	34 U	64 U	17 U	17 U	33 U	15 U	34 U	33 U /33 U	70 U	17 U	17 U	19 U	15 U	15 U	36 U	
4-Nitroaniline	µg/kg	150 U	270 U	73 U	73 U	140 U	66 U	150 U	140 U /140 U	300 U	73 U	73 U	82 U	65 U	66 U	150 U	
4-Nitrophenol	µg/kg	230 U	430 U	110 U	110 U	220 U	100 U	230 U	220 U /220 U	470 U	110 U	110 U	130 U	100 U	100 U	240 U	
Acenaphthene	µg/kg	45	120	16	21	150	22	31	36 /54	45	4.5 J	25	3.9 U	19	26	44	
Acenaphthylene	µg/kg	55	80	32	41	38	42	38	37 /37	32 J	11	42	7.7 J	7.5 J	11 J	19 J	
Acetophenone	µg/kg	27 U	50 U	13 U	13 U	26 U	12 U	27 U	26 U /26 U	55 U	13 U	13 U	15 U	12 U	12 U	28 U	
Anthracene	µg/kg	150	1500	60	69	270	150	91	110 /160	100	18	77	22	100	97	150	
Atrazine	µg/kg	88 U	160 U	44 U	44 U	85 U	40 U	88 U	85 U /85 U	180 U	44 U	44 U	49 U	39 U	40 U	92 U	
Benzaldehyde	µg/kg	56 U	110 U	28 U	28 U	54 U	25 U	56 U	54 U /54 U	110 U	28 U	28 U	31 U	25 U	25 U	59 U	
Benzo(a)anthracene	µg/kg	690	1900	380	390	960	510	590	580 /780	520	100	360	89	500	560	890	
Benzo(a)pyrene	µg/kg	750	1600	430	430	1000	580	820	750 /940	610	130	380	73	500	560	960	
Benzo(b)fluoranthene	µg/kg	1400	2700	870	860	1500	790	1200	1200 /1500	980	190	480	90	940 J	800	1700	
Benzo(g,h,i)perylene	µg/kg	380	630	240	210	490	300	560	440 /530	380	110	200	39	120 J	240	210	
Benzo(k)fluoranthene	µg/kg	570	1100	280	290	350	220	350	360 /440	210	67	200	40	350	320	670	
Biphenyl (1,1-Biphenyl)	µg/kg	42 U	78 U	21 U	21 U	40 U	19 U	42 U	40 U /40 U	85 U	21 U	21 U	23 U	18 U	19 U	43 U	
bis(2-Chloroethoxy)methane	µg/kg	29 U	55 U	15 U	15 U	28 U	13 U	29 U	28 U /28 U	60 U	15 U	15 U	16 U	13 U	13 U	31 U	
bis(2-Chloroethyl)ether	µg/kg	29 U	55 U	15 U	15 U	28 U	13 U	29 U	28 U /28 U	60 U	15 U	15 U	16 U	13 U	13 U	31 U	
bis(2-Ethylhexyl)phthalate (DEHP)	µg/kg	130 U	230 U	100	120	120 J	160	150 J	140 J /140 J	250 U	120	62 U	70 U	55 U	56 U	130 U	
Butyl benzylphthalate (BBP)	µg/kg	54 U	100 U	27 U	49 J	52 U	24 U	54 U	52 U /52 U	110 J	27 U	27 U	30 U	24 U	24 U	56 U	
Caprolactam	µg/kg	180 U	340 U	91 U	91 U	180 U	82 U	180 U	180 U /180 U	370 U	91 U	91 U	100 U	81 U	83 U	190 U	
Carbazole	µg/kg	110 J	280	56 J	54 J	250	57	81 J	86 J /110 J	95 U	23 U	41 J	26 U	68	91	130	
Chrysene	µg/kg	900	1900	520	480	1100	540	840	760 /1000	630	140	410	86	580	650	1100	
Dibenz(a,h)anthracene	µg/kg	110															

Table 2

**2018 and 2019 Floodplain Soil Data - Adjacent (to OU1) Samples**  
**South Dayton Dump and Landfill Site**  
**Moraine, Ohio**

Sample Location:	SS-171 8/7/2018	SS-171 8/7/2018	SS-172 8/7/2018	SS-172 8/7/2018	SS-173 8/8/2018	SS-173 8/8/2018	SS-174 8/8/2018	SS-174 8/8/2018	SS-175 8/8/2018	SS-175 8/8/2018	SS-178 11/14/2019	SS-178 11/14/2019	SS-179 11/14/2019	SS-179 11/14/2019	SS-179 11/14/2019	SS-180 11/14/2019
Sample Date:	8/7/2018	8/7/2018	8/7/2018	8/7/2018	8/8/2018	8/8/2018	8/8/2018	8/8/2018	8/8/2018	8/8/2018	11/14/2019	11/14/2019	11/14/2019	11/14/2019	11/14/2019	
Sample Depth:	0-0.17 ft BGS	0.17-2.17 ft BGS	0-0.5 ft BGS	0.5-2 ft BGS	0-0.5 ft BGS	0.5-2 ft BGS	0-0.5 ft BGS									
<b>Analyte</b>																
Naphthalene	μg/kg	29	37	10	16	54	40	20	21 /24	31 J	37 U	44	9.2 J	5.6 J	9.4 J	34 J
Nitrobenzene	μg/kg	32 U	59 U	16 U	16 U	31 U	14 U	32 U	31 U /31 U	65 U	16 U	18 U	14 U	14 U	33 U	
N-Nitrosodi-n-propylamine	μg/kg	27 U	50 U	13 U	13 U	26 U	12 U	27 U	26 U /26 U	55 U	13 U	15 U	12 U	12 U	28 U	
N-Nitrosodiphenylamine	μg/kg	29 U	55 U	15 U	15 U	28 U	13 U	29 U	28 U /28 U	60 U	15 U	15 U	13 U	13 U	31 U	
Pentachlorophenol	μg/kg	140 U	270 U	70 U	70 U	140 U	64 U	140 U	140 U /140 U	290 U	70 U	79 U	63 U	64 U	150 U	
Phenanthrene	μg/kg	800	2500	350	350	1900	630	610	730 /1300	690	83	410	78	520 J	630	
Phenol	μg/kg	20 U	37 U	15 J	9.7 U	19 U	8.8 U	20 U	19 U /19 U	40 U	9.7 U	9.7 U	11 U	8.6 U	8.8 U	
Pyrene	μg/kg	1600	3900	830	790	1700	890	1200	1100 /1500	940	190	590	150	1100 J	1800	
<b>Metals</b>																
Aluminum	mg/kg	7400	6900	7900	9700	8100	4300	7000	5000 /4800	7300	4300	5600	2300	2100	3100	5000
Antimony	mg/kg	0.22 J	0.28 J	0.21 J	0.24 J	0.26 J	0.20 J	0.17 J	0.14 J /0.13 J	0.18 J	0.17 J	0.22 J	0.15 UJ	0.13 UJ	0.11 UJ	0.13 J
Arsenic	mg/kg	7.3	7.2	6.8	8.6	7.2	4.8	6.2	4.8 /4.7	6.1	5.1	4.5	2.1	2.4	3.2	4.7
Barium	mg/kg	110	97	110	130	110	61	110	74 /77	100	89	88	38	28	43	77
Beryllium	mg/kg	0.44	0.39	0.44	0.53	0.73	0.30	0.45	0.31 /0.31	0.48	0.31	0.36	0.13 J	0.14 J	0.17 J	0.26
Cadmium	mg/kg	0.54	0.78	0.49	0.84	0.93	0.82	0.49	0.42 /0.39	0.89	0.56	0.68	0.15 J	0.13 J	0.21	0.30
Calcium	mg/kg	83000	90000	79000	68000	72000	96000	83000	90000 /93000	73000	100000	57000	94000	86000	80000	86000
Chromium	mg/kg	16	22	17	23	24	19	15	13 /13	24	12	16	4.9	6.3	7.6	10
Cobalt	mg/kg	6.3	5.8	6.1	7.5	5.9	3.5 J	5.2	3.7 /3.9	5.0	3.6	3.8	1.6	2.2	2.8	4.1
Copper	mg/kg	23	31	21	28	25	21 J	20	16 /15	27	16	34	6.3	9.2	8.4	15
Iron	mg/kg	17000	16000	16000	19000	15000	9300 J	14000	10000 /10000	13000	9300	11000	5700	5900	8000	11000
Lead	mg/kg	29	44	27	46	46	52 J	25	27 /22	54	19	38	6.9	7.8	21	20
Magnesium	mg/kg	25000	28000	25000	23000	24000	29000 J	25000	27000 /27000	22000	22000	19000	31000	27000	26000	24000
Manganese	mg/kg	520	470	460	560	500	350 J	510	370 /390	410	360	160	150	210	250	380
Mercury	mg/kg	0.062 J	0.075 J	0.060 J	0.094 J	0.093 J	0.057 J	0.071 J	0.056 J /0.049 J	0.10 J	0.038 J	0.25 J	0.052 J	0.022 J	0.029 J	0.048 J
Nickel	mg/kg	17	20	17	23	19 J	12 J	14 J	11 J /11 J	17 J	10 J	13	4.9	6.2	8.4	13
Potassium	mg/kg	1100	1000	1300	1500	1000 J	520 J	910 J	610 J /610 J	810 J	460 J	720	330	420	480	740
Selenium	mg/kg	1.3	1.1	1.1	1.3	0.97 J	0.53 J	0.92 J	0.73 J /0.66 J	0.80 J	0.59 J	0.42 J	0.14 U	0.15 J	0.26 J	0.41 J
Silver	mg/kg	0.20 J	0.41	0.19 J	0.52	0.55 J	0.31 J	0.19 J	0.20 J /0.21 J	0.49 J	0.18 J	0.34	0.054 J	0.025 J	0.058 J	0.074 J
Sodium	mg/kg	110 J	120 J	100 J	97 J	110 J	130 J	120 J	130 J /120 J	110 J	130 J	77 U	100 U	98 U	95 U	100 U
Thallium	mg/kg	0.28	0.23	0.26	0.34	0.27	0.15 J	0.24	0.17 J /0.17 J	0.23	0.13 J	0.23	0.093 J	0.075 J	0.10 J	0.16 J
Vanadium	mg/kg	19	18	20	23	19	12	17	14 /14	18	12 J	16	8.2	7.1	9.3	13
Zinc	mg/kg	90	110	85	110	97	69	75	59 /59	89	40 J	74	20	26	38	59
<b>PCBs</b>																
Aroclor-1016 (PCB-1016)	μg/kg	28 U	25 U	25 U	28 U	27 U	24 U	28 U	27 U /27 U	28 U	27 U	26 U	30 U	23 U	24 U	27 U
Aroclor-1221 (PCB-1221)	μg/kg	31 U	28 U	30 U	30 U	26 U	30 U	30 U	29 U /30 U	30 U	29 U	28 U	32 U	26 U	27 U	29 U
Aroclor-1232 (PCB-1232)	μg/kg	29 U	26 U	27 U	29 U	28 U	25 U	29 U	28 U /29 U	29 U	28 U	27 U	31 U	24 U	26 U	28 U
Aroclor-1242 (PCB-1242)	μg/kg	24 U	22 U	22 U	24 U	23 U	20 U	24 U	23 U /24 U	24 U	23 U	22 U	25 U	20 U	21 U	23 U
Aroclor-1248 (PCB-1248)	μg/kg	31 U	28 U	28 U	30 U	30 U	26 U</td									

Table 2

**2018 and 2019 Floodplain Soil Data - Adjacent (to OU1) Samples**  
**South Dayton Dump and Landfill Site**  
**Moraine, Ohio**

Sample Location:	SS-171	SS-171	SS-172	SS-172	SS-173	SS-173	SS-174	SS-174	SS-175	SS-175	SS-178	SS-178	SS-179	SS-179	SS-180
Sample Date:	8/7/2018	8/7/2018	8/7/2018	8/7/2018	8/8/2018	8/8/2018	8/8/2018	8/8/2018	8/8/2018	8/8/2018	11/14/2019	11/14/2019	11/14/2019	11/14/2019	11/14/2019
Sample Depth:	0-0.17 ft BGS	0.17-2.17 ft BGS	0-0.17 ft BGS	0.17-2.17 ft BGS	0-0.5 ft BGS	0.5-2 ft BGS	0-0.5 ft BGS	0.5-2 ft BGS	0-0.5 ft BGS						
<b>Analyte</b>															
Endosulfan II	µg/kg	1.9 U	1.7 U	1.7 U	1.9 U	1.8 U	7.9 U	9.4 U	9.0 U /9.2 U	9.4 U	9.0 U	--	--	--	--
Endosulfan sulfate	µg/kg	1.6 U	1.5 U	1.5 U	1.6 U	1.6 U	6.9 U	8.1 U	7.8 U /7.9 U	8.1 U	7.8 U	--	--	--	--
Endrin	µg/kg	2.4 U	2.2 U	2.2 U	2.4 U	2.3 U	10 U	12 U	12 U /12 U	12 U	12 U	--	--	--	--
Endrin aldehyde	µg/kg	1.7 U	1.5 U	1.5 U	1.6 U	1.6 U	7.0 U	8.3 U	7.9 U /8.1 U	8.3 U	8.0 U	--	--	--	--
Endrin ketone	µg/kg	1.1 U	1.0 U	1.0 U	1.1 U	1.1 U	4.8 U	5.6 U	5.4 U /5.5 U	5.6 U	5.4 U	--	--	--	--
gamma-BHC (lindane)	µg/kg	2.3 U	2.1 U	2.1 U	2.2 U	2.2 U	9.6 U	11 U	11 U /11 U	11 U	11 U	--	--	--	--
gamma-Chlordane	µg/kg	1.6 U	1.4 U	1.4 U	1.5 U	1.5 NJ	6.6 U	7.8 U	7.5 U /7.6 U	7.8 U	7.5 U	--	--	--	--
Heptachlor	µg/kg	2.0 U	1.8 U	1.8 U	2.0 U	1.9 U	8.5 U	10 U	9.6 U /9.8 U	10 U	9.6 U	--	--	--	--
Heptachlor epoxide	µg/kg	1.8 U	1.7 U	1.7 U	1.8 U	1.8 U	7.7 U	9.1 U	8.7 U /8.9 U	9.1 U	8.8 U	--	--	--	--
Methoxychlor	µg/kg	8.4 U	7.5 U	7.6 U	8.2 U	8.1 U	35 U	42 U	40 U /41 U	41 U	40 U	--	--	--	--
Toxaphene	µg/kg	32 U	29 U	51 J	31 U	31 U	130 U	160 U	150 U /160 U	160 U	150 U	--	--	--	--
<b>Herbicides</b>															
2,4,5-T	µg/kg	16 U	15 U	16 U	16 U	15 U	14 U	16 U	16 U /15 U	16 U	16 U	--	--	--	--
2,4,5-TP (Silvex)	µg/kg	18 U	16 U	17 U	17 U	16 U	15 U	17 U	17 U /16 U	17 U	17 U	--	--	--	--
2,4-Dichlorophenoxyacetic acid (2,4-D)	µg/kg	62 U	56 U	60 U	60 U	57 U	54 U	61 U	59 U /57 U	59 U	59 U	--	--	--	--
<b>General Chemistry</b>															
Cyanide (total)	mg/kg	0.24 U	0.19 U	0.22 U	0.23 U	0.22 U	0.19 U	0.22 U	0.24 U /0.21 U	0.25 U	0.23 U	--	--	--	--

## Notes:

J - Estimated concentration.

NJ - Tentatively identified compound, estimated concentration.

R - Rejected.

U - Not detected at the associated reporting limit.

UJ - Not detected; associated reporting limit is estimated.

Table 2

**2018 and 2019 Floodplain Soil Data - Adjacent (to OU1) Samples**  
**South Dayton Dump and Landfill Site**  
**Moraine, Ohio**

Sample Location:	SS-180	SS-181	SS-181	SS-182	SS-182	SS-183	SS-183	SS-184	SS-184	SS-185	SS-185	SS-186	SS-186
Sample Date:	11/14/2019	11/14/2019	11/14/2019	11/14/2019	11/14/2019	11/14/2019	11/14/2019	11/14/2019	11/14/2019	11/14/2019	11/14/2019	11/14/2019	11/14/2019
Sample Depth:	0.5-2 ft BGS	0-0.5 ft BGS	0.5-2 ft BGS										
<b>Analyte</b>													
<b>Volatiles</b>													
1,1,1-Trichloroethane	µg/kg	--	--	--	--	--	--	--	--	--	--	--	--
1,1,2,2-Tetrachloroethane	µg/kg	--	--	--	--	--	--	--	--	--	--	--	--
1,1,2-Trichloroethane	µg/kg	--	--	--	--	--	--	--	--	--	--	--	--
1,1-Dichloroethane	µg/kg	--	--	--	--	--	--	--	--	--	--	--	--
1,1-Dichloroethene	µg/kg	--	--	--	--	--	--	--	--	--	--	--	--
1,2,4-Trichlorobenzene	µg/kg	--	--	--	--	--	--	--	--	--	--	--	--
1,2-Dibromo-3-chloropropane (DBCP)	µg/kg	--	--	--	--	--	--	--	--	--	--	--	--
1,2-Dibromoethane (Ethylene dibromide)	µg/kg	--	--	--	--	--	--	--	--	--	--	--	--
1,2-Dichlorobenzene	µg/kg	--	--	--	--	--	--	--	--	--	--	--	--
1,2-Dichloroethane	µg/kg	--	--	--	--	--	--	--	--	--	--	--	--
1,2-Dichloropropane	µg/kg	--	--	--	--	--	--	--	--	--	--	--	--
1,3-Dichlorobenzene	µg/kg	--	--	--	--	--	--	--	--	--	--	--	--
1,4-Dichlorobenzene	µg/kg	--	--	--	--	--	--	--	--	--	--	--	--
2-Butanone (Methyl ethyl ketone) (MEK)	µg/kg	--	--	--	--	--	--	--	--	--	--	--	--
2-Hexanone	µg/kg	--	--	--	--	--	--	--	--	--	--	--	--
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/kg	--	--	--	--	--	--	--	--	--	--	--	--
Acetone	µg/kg	--	--	--	--	--	--	--	--	--	--	--	--
Benzene	µg/kg	--	--	--	--	--	--	--	--	--	--	--	--
Bromodichloromethane	µg/kg	--	--	--	--	--	--	--	--	--	--	--	--
Bromoform	µg/kg	--	--	--	--	--	--	--	--	--	--	--	--
Bromomethane (Methyl bromide)	µg/kg	--	--	--	--	--	--	--	--	--	--	--	--
Carbon disulfide	µg/kg	--	--	--	--	--	--	--	--	--	--	--	--
Carbon tetrachloride	µg/kg	--	--	--	--	--	--	--	--	--	--	--	--
Chlorobenzene	µg/kg	--	--	--	--	--	--	--	--	--	--	--	--
Chloroethane	µg/kg	--	--	--	--	--	--	--	--	--	--	--	--
Chloroform (Trichloromethane)	µg/kg	--	--	--	--	--	--	--	--	--	--	--	--
Chloromethane (Methyl chloride)	µg/kg	--	--	--	--	--	--	--	--	--	--	--	--
cis-1,2-Dichloroethene	µg/kg	--	--	--	--	--	--	--	--	--	--	--	--
cis-1,3-Dichloropropene	µg/kg	--	--	--	--	--	--	--	--	--	--	--	--
Cyclohexane	µg/kg	--	--	--	--	--	--	--	--	--	--	--	--
Dibromochloromethane	µg/kg	--	--	--	--	--	--	--	--	--	--	--	--
Dichlorodifluoromethane (CFC-12)	µg/kg	--	--	--	--	--	--	--	--	--	--	--	--
Ethylbenzene	µg/kg	--	--	--	--	--	--	--	--	--	--	--	--
Isopropyl benzene	µg/kg	--	--	--	--	--	--	--	--	--	--	--	--
Methyl acetate	µg/kg	--	--	--	--	--	--	--	--	--	--	--	--
Methyl cyclohexane	µg/kg	--	--	--	--	--	--	--	--	--	--	--	--
Methyl tert butyl ether (MTBE)	µg/kg	--	--	--	--	--	--	--	--	--	--	--	--
Methylene chloride	µg/kg	--	--	--	--	--	--	--	--	--	--	--	--
Styrene	µg/kg	--	--	--	--	--	--	--	--	--	--	--	--
Tetrachloroethene	µg/kg	--	--	--	--	--	--	--	--	--	--	--	--
Toluene	µg/kg	--	--	--	--	--	--	--	--	--	--	--	--
trans-1,2-Dichloroethene	µg/kg	--	--	--	--	--	--	--	--	--	--	--	--
trans-1,3-Dichloropropene	µg/kg	--	--	--	--	--	--	--	--	--	--	--	--
Trichloroethene	µg/kg	--	--	--	--	--	--	--	--	--	--	--	--
Trichlorofluoromethane (CFC-11)	µg/kg	--	--	--	--	--	--	--	--	--	--	--	--
Trifluorotrichloroethane (CFC-113)	µg/kg	--	--	--	--	--	--	--	--	--	--	--	--
Vinyl chloride	µg/kg	--	--	--	--	--	--	--	--	--	--	--	--
Xylenes (total)	µg/kg	--	--	--	--	--	--	--	--	--	--	--	--
<b>Semi-Volatiles</b>													
2,2'-Oxybis(1-chloropropane) (bis(2-Chloroisopropyl) ether)	µg/kg	46 U	24 U	23 U	12 U	11 U /11 U	24 U	23 U	24 U	11 U	24 U	12 U	13 U /13 U
2,4,5-Trichlorophenol	µg/kg	320 U	170 U	160 U	81 U	78 U /78 U	170 U	160 U	170 U	78 U	170 U	84 U	89 U /89 U
2,4,6-Trichlorophenol	µg/kg	290 U	150 U	150 U	75 U	72 U /72 U	150 U	150 U	160 U	72 U	150 U	78 U	83 U /83 U

Table 2

**2018 and 2019 Floodplain Soil Data - Adjacent (to OU1) Samples**  
**South Dayton Dump and Landfill Site**  
**Moraine, Ohio**

Sample Location:	SS-180	SS-181	SS-181	SS-182	SS-182	SS-183	SS-183	SS-184	SS-184	SS-185	SS-185	SS-186	SS-186	
Sample Date:	11/14/2019	11/14/2019	11/14/2019	11/14/2019	11/14/2019	11/14/2019	11/14/2019	11/14/2019	11/14/2019	11/14/2019	11/14/2019	11/14/2019	11/14/2019	
Sample Depth:	0.5-2 ft BGS	0-0.5 ft BGS	0.5-2 ft BGS											
<b>Analyte</b>														
2,4-Dichlorophenol	µg/kg	200 U	110 U	100 U	52 U	50 U /50 U	110 U	100 U	110 U	50 U	110 U	53 U	57 U /57 U	55 U
2,4-Dimethylphenol	µg/kg	180 U	96 U	93 U	47 U	45 U /45 U	97 U	93 U	97 U	45 U	96 U	48 U	52 U /52 U	50 U
2,4-Dinitrophenol	µg/kg	650 U	340 U	330 U	170 U	160 U /160 U	340 U	330 U	350 U	R	340 U	170 U	180 U /180 U	180 U
2,4-Dinitrotoluene	µg/kg	290 U	150 U	140 U	73 U	70 U /70 U	150 U	140 U	150 U	70 U	150 U	75 U	80 U /80 U	78 U
2,6-Dinitrotoluene	µg/kg	260 U	130 U	130 U	66 U	63 U /63 U	140 U	130 U	140 U	63 U	130 U	68 U	72 U /72 U	70 U
2-Chloronaphthalene	µg/kg	64 U	34 U	33 U	16 U	16 U /16 U	34 U	33 U	34 U	16 U	34 U	17 U	18 U /18 U	18 U
2-Chlorophenol	µg/kg	46 U	24 U	23 U	12 U	11 U /11 U	24 U	23 U	24 U	11 U	24 U	12 U	13 U /13 U	13 U
2-Methylnaphthalene	µg/kg	20 J	30 J	12 J	11 J	11 J /14 J	27 J	17 J	10 J	11 J	17 J	15 J	12 J /17 J	14 J
2-Methylphenol	µg/kg	140 U	74 U	72 U	36 U	35 U /35 U	75 U	72 U	75 U	35 U	74 U	38 U	40 U /40 U	39 U
2-Nitroaniline	µg/kg	180 U	96 U	93 U	47 U	45 U /45 U	97 U	93 U	97 U	45 U	96 U	48 U	52 U /52 U	50 U
2-Nitrophenol	µg/kg	60 U	31 U	30 U	15 U	15 U /15 U	31 U	30 U	32 U	15 U	31 U	16 U	17 U /17 U	16 U
3&4-Methylphenol	µg/kg	130 U	69 U	67 U	34 U	33 U /33 U	70 U	68 U	70 U	33 U	69 U	35 U	37 U /37 U	36 U
3,3'-Dichlorobenzidine	µg/kg	200 U	100 U	100 U	51 U	48 U /48 U	100 U	100 U	100 U	48 U	100 U	52 U	56 U /55 U	54 U
3-Nitroaniline	µg/kg	230 U	120 U	110 U	58 U	55 U /55 U	120 U	110 U	120 U	55 U	120 U	59 U	63 U /63 U	62 U
4,6-Dinitro-2-methylphenol	µg/kg	370 U	190 U	190 U	94 U	90 U /90 U	190 U	190 U	190 U	R	190 U	97 U	100 U /100 U	100 U
4-Bromophenyl phenyl ether	µg/kg	64 U	34 U	33 U	16 U	16 U /16 U	34 U	33 U	34 U	16 U	34 U	17 U	18 U /18 U	18 U
4-Chloro-3-methylphenol	µg/kg	210 U	110 U	100 U	53 U	51 U /51 U	110 U	100 U	110 U	51 U	110 U	55 U	58 U /58 U	57 U
4-Chloroaniline	µg/kg	140 U	72 U	70 U	35 U	34 U /34 U	73 U	70 U	73 U	34 U	72 U	36 U	39 U /39 U	38 U
4-Chlorophenyl phenyl ether	µg/kg	64 U	34 U	33 U	16 U	16 U /16 U	34 U	33 U	34 U	16 U	34 U	17 U	18 U /18 U	18 U
4-Nitroaniline	µg/kg	280 U	140 U	140 U	71 U	68 U /68 U	150 U	140 U	150 U	68 U	140 U	73 U	78 U /77 U	76 U
4-Nitrophenol	µg/kg	430 U	230 U	220 U	110 U	110 U /110 U	230 U	220 U	230 U	110 U	230 U	110 U	120 U /120 U	120 U
Acenaphthene	µg/kg	34 J	53	48	21	23 /32	48	110	33 J	12 J	45	40	16 J /22	21
Acenaphthylene	µg/kg	18 U	17 J	14 J	11 J	14 J /11 J	18 J	26 J	26 J	13 J	19 J	13 J	16 J /16 J	19
Acetophenone	µg/kg	51 U	26 U	26 U	13 U	12 U /12 U	27 U	26 U	27 U	12 U	26 U	13 U	14 U /14 U	14 U
Anthracene	µg/kg	120	140	140	53	76 /100	130	250	120	43 J	120	100	56 /65	62
Atrazine	µg/kg	170 U	86 U	84 U	42 U	41 U /41 U	87 U	84 U	88 U	41 U	86 U	44 U	47 U /46 U	45 U
Benzaldehyde	µg/kg	110 U	55 U	54 U	27 U	26 U /26 U	56 U	54 U	56 U	26 U	55 U	28 U	32 J /38 J	29 U
Benzo(a)anthracene	µg/kg	630	790	790	320	490 /510	730	870	630	390 J	680	610	470 /530	480
Benzo(a)pyrene	µg/kg	660	820	830	390	540 /510	790	780	630	440 J	710	670	550 /610	560
Benzo(b)fluoranthene	µg/kg	1100	1400	1500	710	930 /820	1200	1200	1000	770 J	1100	1100	990 /1100	840
Benzo(g,h,i)perylene	µg/kg	160	210	210	140	160 /240	240	500	540	120 J	620	190	180 /210	250
Benzo(k)fluoranthene	µg/kg	450	530	530	250	350 /290	610	450	350	330 J	340	450	370 /420	380
Biphenyl (1,1-Biphenyl)	µg/kg	78 U	41 U	40 U	20 U	19 U /19 U	41 U	40 U	41 U	19 U	41 U	21 U	22 U /22 U	21 U
bis(2-Chloroethoxy)methane	µg/kg	55 U	29 U	28 U	14 U	14 U /14 U	29 U	28 U	29 U	14 U	29 U	15 U	16 U /15 U	15 U
bis(2-Chloroethyl)ether	µg/kg	55 U	29 U	28 U	14 U	14 U /14 U	29 U	28 U	29 U	14 U	29 U	15 U	16 U /15 U	15 U
bis(2-Ethylhexyl)phthalate (DEHP)	µg/kg	4500	120 U	120 U	60 U	57 U /57 U	120 U	390	190	57 U	130 J	62 U	66 U /66 U	71 J
Butyl benzylphthalate (BBP)	µg/kg	100 U	53 U	51 U	26 U	40 J /25 U	53 U	51 U	53 U	25 U	53 U	27 U	28 U /28 U	28 U
Caprolactam	µg/kg	340 U	180 U	170 U	88 U	84 U /84 U	180 U	170 U	180 U	84 U	180 U	91 U	97 U /97 U	94 U
Carbazole	µg/kg	98 J	110 J	110 J	39 J	70 /73	110 J	140	110 J	39 J	99 J	66	46 J /61 J	58 J
Chrysene	µg/kg	800	930	870	410	610 /610	920	950	770	470 J	820	810	630 /710	650
Dibenz(a,h)anthracene	µg/kg	52 J	74	65	40	47 /74	76	140	120	35 J	130	57	54 /63	70
Dibenzofuran	µg/kg	60 U	38 J	30 J	15 U	15 J /24 J	39 J	41 J	32 U	15 U	31 U	25 J	17 U /17 U	16 J
Diethyl phthalate	µg/kg	140 U	74 U	72 U	36 U	35 U /35 U	75 U	72 U	75 U	35 U	74 U	38 U	40 U /40 U	39 U
Dimethyl phthalate	µg/kg	64 U	34 U	33 U	1600	22 J /16 U	34 U	33 U	34 U	16 U	34 U	17 U	18 U /18 U	18 U
Di-n-butylphthalate (DBP)	µg/kg	100 U	53 U	51 U	26 U	25 U /25 U	53 U	51 U	53 U					

**Table 2**

**2018 and 2019 Floodplain Soil Data - Adjacent (to OU1) Samples  
South Dayton Dump and Landfill Site  
Moraine, Ohio**

Table 2

**2018 and 2019 Floodplain Soil Data - Adjacent (to OU1) Samples**  
**South Dayton Dump and Landfill Site**  
**Moraine, Ohio**

Sample Location:	SS-180	SS-181	SS-181	SS-182	SS-182	SS-183	SS-183	SS-184	SS-184	SS-185	SS-185	SS-186	SS-186
Sample Date:	11/14/2019	11/14/2019	11/14/2019	11/14/2019	11/14/2019	11/14/2019	11/14/2019	11/14/2019	11/14/2019	11/14/2019	11/14/2019	11/14/2019	11/14/2019
Sample Depth:	0.5-2 ft BGS	0-0.5 ft BGS	0.5-2 ft BGS										
<b>Analyte</b>													
Endosulfan II	µg/kg	--	--	--	--	--	--	--	--	--	--	--	--
Endosulfan sulfate	µg/kg	--	--	--	--	--	--	--	--	--	--	--	--
Endrin	µg/kg	--	--	--	--	--	--	--	--	--	--	--	--
Endrin aldehyde	µg/kg	--	--	--	--	--	--	--	--	--	--	--	--
Endrin ketone	µg/kg	--	--	--	--	--	--	--	--	--	--	--	--
gamma-BHC (lindane)	µg/kg	--	--	--	--	--	--	--	--	--	--	--	--
gamma-Chlordane	µg/kg	--	--	--	--	--	--	--	--	--	--	--	--
Heptachlor	µg/kg	--	--	--	--	--	--	--	--	--	--	--	--
Heptachlor epoxide	µg/kg	--	--	--	--	--	--	--	--	--	--	--	--
Methoxychlor	µg/kg	--	--	--	--	--	--	--	--	--	--	--	--
Toxaphene	µg/kg	--	--	--	--	--	--	--	--	--	--	--	--
<b>Herbicides</b>													
2,4,5-T	µg/kg	--	--	--	--	--	--	--	--	--	--	--	--
2,4,5-TP (Silvex)	µg/kg	--	--	--	--	--	--	--	--	--	--	--	--
2,4-Dichlorophenoxyacetic acid (2,4-D)	µg/kg	--	--	--	--	--	--	--	--	--	--	--	--
<b>General Chemistry</b>													
Cyanide (total)	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--

## Notes:

- J - Estimated concentration.
- NJ - Tentatively identified compound, estimated concentration.
- R - Rejected.
- U - Not detected at the associated reporting limit.
- UJ - Not detected; associated reporting limit is estimated.

Table 3

**Soil Depth Comparison Results - 2018 Adjacent (to OU1) Data**  
**Floodplain Soil Data**  
**South Dayton Dump and Landfill Site**  
**Moraine, Ohio**

Analyte	Number of Calculated RPDs <sup>(1)</sup>			Mean RPD	SD of RPDs	95% Confidence Limits of Mean		t-test				
		Minimum	Maximum			Lower	Upper	Probability	Conclusion			
<b>Upstream Data</b>												
<b>Semi-Volatiles</b>												
2-Methylnaphthalene	8	-75%	57%	-35%	40%	-68%	-1%	0.044	Shallow < Deep			
Acenaphthene	7	-53%	116%	-5%	57%	-58%	47%	0.812	NSD			
Acenaphthylene	8	-65%	9%	-28%	25%	-49%	-6%	0.018	Shallow < Deep			
Anthracene	8	-59%	11%	-13%	23%	-32%	6%	0.157	NSD			
B(a)anthracene	8	-56%	13%	-12%	21%	-30%	5%	0.145	NSD			
B(a)pyrene	8	-55%	20%	-9%	22%	-27%	10%	0.301	NSD			
B(b)fluoranthene	8	-40%	19%	-5%	18%	-20%	10%	0.453	NSD			
B(g,h,i)perylene	8	-59%	25%	-9%	24%	-29%	11%	0.321	NSD			
B(k)fluoranthene	8	-67%	25%	-7%	29%	-31%	17%	0.168	NSD			
bis(2-Ethylhexyl)phthalate (DEHP)	8	-56%	88%	-8%	49%	-49%	34%	0.681	NSD			
Butyl benzylphthalate (BBP)	2	-20%	-3%	-12%	12%	-119%	96%	0.395	NSD			
Benzaldehyde	3	16%	98%	53%	42%	-51%	157%	0.158	NSD			
Carbazole	7	-73%	19%	-9%	31%	-38%	19%	0.451	NSD			
Chrysene	8	-57%	25%	-4%	24%	-24%	16%	0.653	NSD			
Dibenz(a,h)anthracene	6	-22%	22%	-2%	17%	-20%	15%	0.757	NSD			
Dibenzofuran	3	-38%	32%	-9%	36%	-99%	81%	0.706	NSD			
Fluoranthene	8	-52%	35%	0%	27%	-22%	23%	0.977	NSD			
Fluorene	7	-133%	0%	-38%	45%	-80%	4%	0.067	NSD			
Indeno(1,2,3-cd)pyrene	8	-52%	24%	-9%	23%	-28%	10%	0.280	NSD			
Naphthalene	7	-119%	-17%	-47%	33%	-78%	-16%	0.010	Shallow < Deep			
Phenanthrene	8	-57%	12%	-11%	22%	-30%	7%	0.197	NSD			
Pyrene	8	-50%	21%	-7%	25%	-28%	14%	0.465	NSD			
<b>Metals</b>												
Aluminum	8	-26%	-10%	-16%	6%	-21%	-11%	8E-05	Shallow < Deep			
Antimony	8	-20%	7%	-13%	9%	-20%	-5%	0.005	Shallow < Deep			
Arsenic	8	-24%	-6%	-16%	5%	-21%	-12%	5E-05	Shallow < Deep			
Barium	8	-14%	7%	-8%	7%	-14%	-2%	0.017	Shallow < Deep			
Beryllium	8	-37%	-11%	-19%	8%	-26%	-13%	2E-04	Shallow < Deep			
Cadmium	8	-100%	-6%	-60%	34%	-88%	-31%	0.002	Shallow < Deep			
Calcium	8	7%	43%	16%	11%	6%	25%	0.006	Shallow > Deep			
Chromium	8	-79%	-6%	-48%	25%	-69%	-27%	0.001	Shallow < Deep			
Cobalt	8	-16%	8%	-9%	8%	-15%	-2%	0.018	Shallow < Deep			
Copper	8	-63%	-5%	-36%	20%	-52%	-19%	0.002	Shallow < Deep			
Iron	8	-19%	-5%	-12%	5%	-15%	-8%	2E-04	Shallow < Deep			
Lead	8	-86%	4%	-55%	30%	-80%	-30%	0.001	Shallow < Deep			
Magnesium	8	-3%	30%	9%	10%	1%	17%	0.032	Shallow > Deep			
Manganese	8	-6%	4%	-3%	3%	-5%	0%	0.047	Shallow < Deep			
Mercury	8	-108%	5%	-34%	35%	-63%	-4%	0.031	Shallow < Deep			
Nickel	8	-37%	-6%	-25%	11%	-34%	-16%	4E-04	Shallow < Deep			
Potassium	8	-14%	14%	-1%	10%	-9%	7%	0.785	NSD			
Selenium	8	-15%	11%	-2%	8%	-9%	5%	0.621	NSD			
Silver	8	-110%	-5%	-71%	39%	-103%	-39%	0.001	Shallow < Deep			
Sodium	8	-2%	10%	3%	4%	-1%	6%	0.098	NSD			
Thallium	8	-23%	-5%	-14%	6%	-19%	-10%	2E-04	Shallow < Deep			
Vanadium	8	-19%	-6%	-14%	5%	-18%	-10%	9E-05	Shallow < Deep			
Zinc	8	-40%	-11%	-23%	10%	-31%	-14%	4E-04	Shallow < deep			
<b>PCBs</b>												
PCB-1254	7	-182%	-25%	-111%	76%	-181%	-41%	0.008	Shallow < Deep			
<b>Adjacent Data</b>												
<b>Semi-Volatiles</b>												
2-Methylnaphthalene	12	-84%	180%	11%	93%	-48%	69%	0.702	NSD			
Acenaphthene	12	-144%	193%	29%	131%	-55%	112%	0.467	NSD			

Table 3

**Soil Depth Comparison Results - 2018 Adjacent (to OU1) Data**  
**Floodplain Soil Data**  
**South Dayton Dump and Landfill Site**  
**Moraine, Ohio**

Analyte	Number of Calculated RPDs <sup>(1)</sup>			Mean	SD of RPDs	95% Confidence Limits of Mean		t-test Probability	Conclusion
		Minimum	Maximum			RPD	Lower		
Acenaphthylene	12	-46%	152%	18%	61%	-20%	57%	0.316	NSD
Anthracene	12	-164%	179%	15%	110%	-55%	85%	0.654	NSD
B(a)anthracene	12	-93%	174%	25%	85%	-29%	79%	0.327	NSD
B(a)pyrene	12	-72%	169%	28%	75%	-19%	76%	0.220	NSD
B(b)fluoranthene	12	-63%	174%	35%	77%	-14%	84%	0.144	NSD
B(g,h,i)perylene	12	-92%	170%	25%	74%	-22%	71%	0.273	NSD
B(k)fluoranthene	12	-67%	174%	25%	73%	-21%	71%	0.258	NSD
bis(2-Ethylhexyl)phthalate (DEHP)	9	-62%	54%	-11%	43%	-45%	22%	0.456	NSD
Butyl benzylphthalate (BBP)	2	-58%	121%	32%	127%	-1106%	1169%	0.784	NSD
Benzaldehyde	1					Insufficient data for test			
Carbazole	10	-117%	129%	4%	88%	-59%	67%	0.893	NSD
Chrysene	12	-77%	173%	31%	78%	-18%	81%	0.193	NSD
Dibenz(a,h)anthracene	10	-192%	197%	15%	141%	-86%	116%	0.746	NSD
Dibenzofuran	9	-116%	116%	-5%	84%	-69%	59%	0.861	NSD
Fluoranthene	12	-99%	177%	31%	90%	-26%	89%	0.252	NSD
Fluorene	12	-153%	194%	23%	125%	-56%	102%	0.536	NSD
Indeno(1,2,3-cd)pyrene	12	-79%	172%	27%	75%	-20%	75%	0.232	NSD
Naphthalene	11	-119%	172%	-5%	76%	-56%	46%	0.836	NSD
Phenanthrene	12	-143%	184%	25%	113%	-47%	97%	0.458	NSD
Pyrene	12	-95%	175%	30%	85%	-24%	84%	0.247	NSD
<b>Metals</b>									
Aluminum	12	-24%	61%	8%	29%	-11%	26%	0.381	NSD
Antimony	12	-73%	80%	9%	44%	-19%	37%	0.492	NSD
Arsenic	12	-37%	40%	5%	27%	-13%	22%	0.566	NSD
Barium	12	-35%	57%	5%	28%	-13%	23%	0.564	NSD
Beryllium	12	-33%	83%	12%	33%	-9%	33%	0.247	NSD
Cadmium	12	-109%	66%	-12%	59%	-50%	25%	0.493	NSD
Calcium	12	-31%	55%	2%	24%	-13%	18%	0.738	NSD
Chromium	12	-88%	67%	9%	76%	-39%	58%	0.686	NSD
Cobalt	12	-25%	51%	6%	24%	-9%	21%	0.413	NSD
Copper	12	-79%	80%	-1%	48%	-31%	29%	0.951	NSD
Iron	12	-26%	47%	7%	23%	-8%	22%	0.332	NSD
Lead	12	-92%	101%	-5%	63%	-45%	35%	0.803	NSD
Magnesium	12	-24%	29%	0%	16%	-10%	10%	0.938	NSD
Manganese	12	-31%	35%	2%	21%	-11%	15%	0.741	NSD
Mercury	12	-75%	95%	5%	57%	-32%	41%	0.790	NSD
Nickel	12	-46%	52%	17%	67%	-25%	59%	0.399	NSD
Potassium	12	-15%	63%	18%	25%	2%	34%	<b>0.029</b>	Shallow > Deep
Selenium	12	-17%	59%	15%	21%	2%	29%	<b>0.032</b>	Shallow > Deep
Silver	12	-110%	98%	-8%	76%	-57%	40%	0.709	NSD
Sodium	12	-32%	13%	-4%	12%	-12%	4%	0.283	NSD
Thallium	12	-48%	57%	4%	34%	-17%	26%	0.666	NSD
Vanadium	12	-25%	45%	5%	21%	-9%	18%	0.468	NSD
Zinc	12	-57%	76%	7%	41%	-19%	33%	0.558	NSD
<b>PCBs</b>									
PCB-1254	9	-166%	132%	-26%	109%	-110%	58%	0.497	NSD

Notes:

Relative Percent Difference (RPD) values calculated as (shallow-deep)/average, and are expressed as a percentage.

(1) RPDs were not calculated if (a) both methods yielded non-detect results, or (b) if one method yielded a non-detect result with a detection limit greater than the detected value from the other method.

NSD - No Significant Difference

Table 4

**Group Comparison Tests Results - 2018 Adjacent (to OU1) vs. Upstream Floodplain Soil Data**  
**South Dayton Dump and Landfill Site**  
**Moraine, Ohio**

Analyte	Units	Upstream Samples					Adjacent Samples					Group Comparison Test			
		N	%ND	Mean	Median	Distribution	N	%ND	Mean	Median	Distribution	Test(s)	Statistic	Probability	Conclusion
<b>Semi-Volatiles</b>															
2-Methylnaphthalene	µg/kg	16	6%	13	13	Gamma	24	4%	26	21	Gamma	t-test (gamma KM)	2.42	<b>0.021</b>	Adjacent > Upstream
Acenaphthene	µg/kg	16	19%	15	14	Normal	24	13%	37	27	Gamma	WRS	256	0.079	NSD
											Quantile		1.84	0.066	
Acenaphthylene	µg/kg	16	0%	29	27	Normal	24	0%	35	38	Normal	t-test	1.13	0.267	NSD
Anthracene	µg/kg	16	0%	50	44	Approx. Normal	24	0%	146	91	Lognormal	WRS	270	<b>0.031</b>	Adjacent > Upstream
											Quantile		1.84	0.066	NSD
Benzo(a)anthracene	µg/kg	16	0%	310	300	Normal	24	0%	476	460	Gamma	WRS	248	0.122	NSD
											Quantile		2.58	<b>0.010</b>	Adjacent > Upstream
Benzo(a)pyrene	µg/kg	16	0%	353	340	Normal	24	0%	512	510	Normal	t-test	1.95	0.060	NSD
Benzo(b)fluoranthene	µg/kg	16	0%	587	580	Normal	24	0%	860	870	Gamma	WRS	258	0.068	NSD
											Quantile		2.58	<b>0.010</b>	Adjacent > Upstream
Benzo(g,h,i)perylene	µg/kg	16	0%	265	300	Approx. Normal	24	0%	300	280	Normal	t-test	0.75	0.461	NSD
Benzo(k)fluoranthene	µg/kg	16	0%	214	200	Normal	24	0%	307	290	Gamma	WRS	247	0.132	NSD
											Quantile		1.10	0.270	NSD
Butyl benzylphthalate (BBP)	µg/kg	16	88%	26	29	N/A (>50% ND)	24	88%	29	28	N/A (>50% ND)	Quantile	-0.428	0.668	NSD
bis(2-Ethylhexyl)phthalate (DEHP)	µg/kg	16	19%	108	94	Normal	24	29%	103	120	Normal	t-test (KM)	-0.34	0.733	NSD
Carbazole	µg/kg	16	13%	40	37	Gamma	24	29%	79	68	Gamma	t-test (gamma KM)	2.57	<b>0.015</b>	Adjacent > Upstream
Chrysene	µg/kg	16	0%	401	410	Approx. Normal	24	0%	567	530	Gamma	WRS	245	0.147	NSD
											Quantile		2.58	<b>0.010</b>	Adjacent > Upstream
Dibenz(a,h)anthracene	µg/kg	16	25%	53	65	Not Normal	24	38%	60	55	Not Normal	WRS	184	0.825	NSD
											Quantile		1.10	0.270	NSD
Dibenzofuran	µg/kg	16	75%	16	17	N/A (>50% ND)	24	42%	33	27	N/A (>50% ND)	Quantile	2.732	0.006	Adjacent > Upstream
Di-n-butylphthalate (DBP)	µg/kg	16	75%	16	17	N/A (>50% ND)	24	46%	34	37	N/A (>50% ND)	Quantile	1.974	0.048	Adjacent > Upstream
Fluoranthene	µg/kg	16	0%	709	640	Normal	24	0%	1186	1100	Gamma	WRS	250	0.109	NSD
											Quantile		1.99	0.047	Adjacent > Upstream
Fluorene	µg/kg	16	19%	15	15	Normal	24	8%	43	32	Gamma	WRS	264	<b>0.047</b>	Adjacent > Upstream
											Quantile		2	0.066	NSD
Indeno(1,2,3-cd)pyrene	µg/kg	16	0%	233	250	Approx. Normal	24	0%	279	270	Normal	t-test	1.08	0.289	NSD
Naphthalene	µg/kg	16	19%	11	11	Normal	24	8%	26	23	Gamma	WRS	293	<b>0.005</b>	Adjacent > Upstream
											Quantile		2.73	<b>0.006</b>	Adjacent > Upstream
Phenanthrene	µg/kg	16	0%	259	250	Gamma	24	0%	600	490	Gamma	t-test (gamma)	2.17	<b>0.037</b>	Adjacent > Upstream
Pyrene	µg/kg	16	0%	550	570	Normal	24	0%	949	860	Gamma	WRS	267	<b>0.040</b>	Adjacent > Upstream
											Quantile		2.58	<b>0.010</b>	Adjacent > Upstream

Table 4

**Group Comparison Tests Results - 2018 Adjacent (to OU1) vs. Upstream Floodplain Soil Data**  
**South Dayton Dump and Landfill Site**  
**Moraine, Ohio**

Analyte	Units	Upstream Samples				Adjacent Samples				Test(s)	Group Comparison Test				
		N	%ND	Mean	Median	Distribution	N	%ND	Mean	Median	Distribution	Statistic	Probability	Conclusion	
<b>Metals</b>															
Aluminum	mg/kg	16	0%	10200	11000	Normal	24	0%	7375	7400	Normal	t-test	-4.20	2E-04	Adjacent < Upstream
Antimony	mg/kg	16	0%	0.267	0.27	Lognormal	24	0%	0.361	0.28	Lognormal	t-test (log)	1.10	0.282	NSD
Arsenic	mg/kg	16	0%	8.8	8.6	Normal	24	0%	7.9	7.6	Normal	t-test	-1.82	0.077	NSD
Barium	mg/kg	16	0%	131	140	Not Normal	24	0%	112	110	Normal	WRS	117	0.037	Adjacent < Upstream
Beryllium	mg/kg	16	0%	0.575	0.58	Normal	24	4%	0.481	0.455	Normal	t-test (KM)	-2.19	0.035	Adjacent < Upstream
Cadmium	mg/kg	16	0%	0.926	0.69	Gamma	24	0%	0.808	0.76	Gamma	WRS	172	0.581	NSD
Calcium	mg/kg	16	0%	60094	63000	Not Normal	24	0%	77500	78000	Normal	Quantile	-1.84	0.066	NSD
Chromium	mg/kg	16	0%	26	20	Not Normal	24	0%	20	19	Gamma	WRS	321	<b>4E-04</b>	<b>Adjacent &gt; Upstream</b>
											Quantile	2.58	<b>0.010</b>	<b>Adjacent &gt; Upstream</b>	
Cobalt	mg/kg	16	0%	8.0	7.7	Not Normal	24	0%	5.8	5.8	Normal	WRS	76	0.001	Adjacent < Upstream
Copper	mg/kg	16	0%	30	27	Normal	24	0%	26	24	Normal	t-test	-1.09	0.285	NSD
Iron	mg/kg	16	0%	19125	19000	Not Normal	24	0%	14992	15000	Normal	WRS	75	0.001	Adjacent < Upstream
Lead	mg/kg	16	0%	45	34	Not Normal	24	0%	41	39	Normal	Quantile	-2.58	0.010	Adjacent < Upstream
Magnesium	mg/kg	16	0%	22431	23000	Not Normal	24	0%	24271	24000	Normal	WRS	161	0.384	NSD
Manganese	mg/kg	16	0%	597	570	Not Normal	24	0%	491	500	Normal	Quantile	-1.10	0.270	NSD
Mercury	mg/kg	16	0%	0.111	0.11	Normal	24	4%	0	0	Normal	t-test (KM)	-2.08	0.049	Adjacent < Upstream
Nickel	mg/kg	16	0%	22	21	Gamma	24	0%	18	17	Gamma	t-test (gamma)	-2.99	0.005	Adjacent < Upstream
Potassium	mg/kg	16	0%	1373	1400	Not Normal	24	0%	1042	1000	Normal	WRS	75	0.001	Adjacent < Upstream
Selenium	mg/kg	16	0%	0.661	0.71	Not Normal	24	0%	1.1	1.1	Normal	Quantile	-2.58	0.010	Adjacent < Upstream
Silver	mg/kg	16	0%	0.486	0.33	Gamma	24	0%	0.361	0.300	Gamma	WRS	318	<b>0.001</b>	<b>Adjacent &gt; Upstream</b>
											Quantile	1.84	<b>0.010</b>	<b>Adjacent &gt; Upstream</b>	
Sodium	mg/kg	16	6%	92	96	Not Normal	24	0%	103	99	Not Normal	WRS	148	0.224	NSD
											Quantile	-1.84	0.066	NSD	
Thallium	mg/kg	16	0%	0.306	0.32	Approx. Normal	24	0%	0.250	0.250	Normal	t-test	-2.12	0.041	Adjacent < Upstream
Vanadium	mg/kg	16	0%	24	25	Normal	24	0%	19	19	Normal	t-test	-3.53	0.001	Adjacent < Upstream
Zinc	mg/kg	16	0%	108	110	Normal	24	0%	90	91	Normal	t-test	-1.65	0.106	NSD

Table 4

**Group Comparison Tests Results - 2018 Adjacent (to OU1) vs. Upstream Floodplain Soil Data**  
**South Dayton Dump and Landfill Site**  
**Moraine, Ohio**

Analyte	Units	Upstream Samples					Adjacent Samples					Group Comparison Test				
		N	%ND	Mean	Median	Distribution	N	%ND	Mean	Median	Distribution	Test(s)	Statistic	Probability	Conclusion	
<b>PCBs</b>																
Aroclor-1248 (PCB-1248)	µg/kg	16	100%	54.6	U	31	N/A (>50% ND)	24	96%	216	30	N/A (>50% ND)	Quantile	-0.131	0.896	NSD
Aroclor-1254 (PCB-1254)	µg/kg	16	13%	642	160	Lognormal	24	21%	147	75	Lognormal	t-test (log)	-2.41	0.024	Adjacent < Upstream	

Notes:

For data sets containing censored data (non-detects), mean values have been calculated using the Kaplan-Meier method (see USEPA, 2015 for details)

NSD - No Significant Difference

A probability of less than 0.05 indicates a statistically significant difference at 95% confidence.

Table 5

Page 1 of 1

**Soil Depth Comparison Results - Combined 2018 and 2019 Adjacent (to OU1) Data**  
**Floodplain Soil Data**  
**South Dayton Dump and Landfill Site**  
**Moraine, Ohio**

Analyte	Number of Calculated RPDs <sup>(1)</sup>			Mean RPD	SD of RPDs	95% Confidence Limits of Mean		t-test Probability	Conclusion
		Minimum	Maximum			Lower	Upper		
<b>Semi-Volatiles</b>									
2-Methylnaphthalene	21	-84%	180%	19%	78%	-17%	54%	0.281	NSD
Acenaphthene	21	-144%	193%	23%	107%	-26%	72%	0.334	NSD
Acenaphthylene	21	-46%	152%	18%	58%	-8%	45%	0.161	NSD
Anthracene	21	-164%	179%	15%	89%	-26%	55%	0.459	NSD
B(a)anthracene	21	-93%	174%	21%	70%	-11%	53%	0.180	NSD
B(a)pyrene	21	-72%	169%	25%	64%	-4%	53%	0.092	NSD
B(b)fluoranthene	21	-63%	174%	30%	65%	1%	60%	<b>0.044</b>	<b>Shallow &gt; Deep</b>
B(g,h,i)perylene	21	-92%	170%	23%	75%	-11%	58%	0.168	
B(k)fluoranthene	21	-67%	174%	22%	62%	-6%	51%	0.114	NSD
BBP	3	-58%	121%	7%	99%	-240%	253%	0.91	NSD
Benzaldehyde	2				Insufficient data for test				
Carbazole	19	-117%	129%	7%	70%	-27%	40%	0.681	NSD
Chrysene	21	-77%	173%	26%	66%	-4%	56%	0.087	NSD
DEHP	14	-189%	108%	-16%	77%	-60%	28%	0.445	NSD
Dibenz(a,h)anthracene	19	-192%	197%	16%	111%	-37%	70%	0.524	NSD
Dibenzofuran	14	-116%	116%	-3%	69%	-43%	37%	0.870	NSD
Fluoranthene	21	-99%	177%	26%	76%	-8%	61%	0.127	NSD
Fluorene	21	-153%	194%	20%	100%	-26%	66%	0.368	NSD
Indeno(1,2,3-cd)pyrene	21	-79%	172%	26%	72%	-7%	58%	0.119	NSD
Naphthalene	20	-119%	172%	10%	68%	-22%	41%	0.523	NSD
Phenanthrene	21	-143%	184%	22%	92%	-20%	64%	0.281	NSD
Pyrene	21	-95%	175%	25%	69%	-6%	57%	0.113	NSD
<b>Metals</b>									
Aluminum	21	-38%	84%	6%	33%	-9%	21%	0.418	NSD
Antimony	19	-73%	80%	5%	37%	-13%	22%	0.581	NSD
Arsenic	21	-37%	73%	3%	29%	-10%	16%	0.597	NSD
Barium	21	-42%	79%	4%	32%	-10%	19%	0.549	NSD
Beryllium	21	-33%	94%	8%	35%	-8%	24%	0.307	NSD
Cadmium	21	-109%	128%	-7%	55%	-32%	18%	0.574	NSD
Calcium	21	-49%	55%	0%	21%	-10%	10%	0.988	NSD
Chromium	21	-88%	106%	-2%	44%	-23%	18%	0.802	NSD
Cobalt	21	-28%	81%	5%	28%	-8%	18%	0.437	NSD
Copper	21	-79%	137%	5%	49%	-17%	27%	0.644	NSD
Iron	21	-30%	63%	5%	26%	-7%	16%	0.416	NSD
Lead	21	-92%	139%	-2%	61%	-30%	26%	0.891	NSD
Magnesium	21	-48%	29%	-3%	16%	-10%	4%	0.406	NSD
Manganese	21	-31%	35%	1%	18%	-8%	9%	0.855	NSD
Mercury	21	-75%	131%	5%	54%	-19%	30%	0.646	NSD
Nickel	21	-46%	91%	3%	35%	-13%	19%	0.678	NSD
Potassium	21	-24%	74%	13%	28%	0%	26%	<b>0.044</b>	<b>Shallow &gt; Deep</b>
Selenium	21	-54%	100%	10%	34%	-6%	25%	0.207	
Silver	21	-110%	145%	-15%	72%	-47%	18%	0.363	NSD
Sodium	12	-32%	13%	-4%	12%	-12%	4%	0.283	NSD
Thallium	21	-48%	85%	3%	35%	-13%	19%	0.736	NSD
Vanadium	21	-27%	64%	4%	25%	-7%	16%	0.421	NSD
Zinc	21	-57%	115%	7%	42%	-12%	26%	0.472	NSD
<b>PCBs</b>									
PCB-1254	16	-166%	132%	-28%	89%	-76%	19%	0.223	NSD

## Notes:

Relative Percent Difference (RPD) values calculated as (shallow-deep)/average, and are expressed as a percentage.

<sup>(1)</sup> RPDs were not calculated if (a) both methods yielded non-detect results, or (b) if one method yielded a non-detect result with a detection limit greater than the detected value from the other method.

NSD - No Significant Difference

Table 6

**Group Comparison Tests Results - Combined 2018 and 2019 Adjacent (to OU1) vs. Upstream Floodplain Soil Data**  
**South Dayton Dump and Landfill Site**  
**Moraine, Ohio**

Analyte	Units	Upstream Samples					Adjacent Samples					Group Comparison Test			
		N	%ND	Mean	Median	Distribution	N	%ND	Mean	Median	Distribution	Test(s)	Statistic	Probability	Conclusion
<b>Semi-Volatiles</b>															
2-Methylnaphthalene	µg/kg	16	6%	13	13	Approx. Gamma	42	2%	22.3	17	Gamma	t-test (gamma KM)	2.47	0.018	Adjacent > Upstream
Acenaphthene	µg/kg	16	19%	15	14	Approx. Lognormal <sup>(1)</sup>	42	10%	36.3	28	Approx. Lognormal	t-test (log KM)	1.99	0.052	NSD
Acenaphthylene	µg/kg	16	0%	28.7	27.5	Approx. Gamma	42	2%	26.9	21	Approx. Gamma	t-test (gamma KM)	-0.66	0.515	NSD
Anthracene	µg/kg	16	0%	50.4	43	Lognormal	42	0%	128	97	Gamma	WRS <sup>(2)</sup>	511	0.002	Adjacent > Upstream
											Quantile		3.20	0.001	Adjacent > Upstream
Benzaldehyde	µg/kg	16	81%	31	30	N/A (>50% ND)	42	95%	26.3	29	N/A (>50% ND)	WRS	368	0.576	NSD
											Quantile		-1.59	0.111	NSD
Benzo(a)anthracene	µg/kg	16	0%	310	290	Approx. Normal	42	0%	517	510	Approx. Normal	t-test	3.51	0.001	Adjacent > Upstream
Benzo(a)pyrene	µg/kg	16	0%	353	335	Normal	42	0%	551	565	Normal	t-test	3.37	0.001	Adjacent > Upstream
Benzo(b)fluoranthene	µg/kg	16	0%	587	560	Normal	42	0%	917	960	Approx. Normal	t-test	3.34	0.002	Adjacent > Upstream
Benzo(g,h,i)perylene	µg/kg	16	0%	265	285	Approx. Normal	42	0%	276	220	Gamma	WRS <sup>(2)</sup>	285	0.374	NSD
											Quantile		-1.78	0.075	NSD
Benzo(k)fluoranthene	µg/kg	16	0%	214	190	Normal	42	0%	341	350	Approx. Normal	t-test	3.17	0.003	Adjacent > Upstream
bis(2-Ethylhexyl)phthalate (DEHP)	µg/kg	16	19%	108	94	Approx. Lognormal <sup>(3)</sup>	42	48%	202	115	Approx. Lognormal <sup>(3)</sup>	t-test (log KM)	-0.46	0.648	NSD
Butyl benzylphthalate (BBP)	µg/kg	16	88%	26	29	--	42	90%	27.7	28	--	WRS	359	0.694	NSD
											Quantile		0	0.679	NSD
Carbazole	µg/kg	16	13%	40	37	Gamma	42	19%	80.0	72	Gamma	t-test (gamma KM)	4.19	1E-04	Adjacent > Upstream
Chrysene	µg/kg	16	0%	401	385	Approx. Normal	42	0%	622	630	Approx. Normal	WRS	497	0.005	Adjacent > Upstream
											Quantile		2.42	0.016	Adjacent > Upstream
Dibenz(a,h)anthracene	µg/kg	16	25%	53	65	Not Normal	42	21%	63.2	60	Not Normal	WRS	347	0.855	NSD
											Quantile		1.10	0.269	NSD
Dibenzofuran	µg/kg	16	75%	16	17	N/A (>50% ND)	42	43%	29.0	27	Not Normal	WRS	477	0.014	Adjacent > Upstream
											Quantile		2.78	0.006	Adjacent > Upstream
Di-n-butylphthalate (DBP)	µg/kg	16	75%	16	17	N/A (>50% ND)	42	69%	30.1	36	N/A (>50% ND)	WRS	468	0.021	Adjacent > Upstream
											Quantile		2.05	0.041	Adjacent > Upstream
Fluoranthene	µg/kg	16	0%	709	640	Normal	42	0%	1247	1250	Approx. Normal	t-test	3.51	0.001	Adjacent > Upstream
Fluorene	µg/kg	16	19%	15	15	Gamma	42	5%	42.0	33	Gamma	t-test (gamma KM)	3.80	4E-04	Adjacent > Upstream
Indeno(1,2,3-cd)pyrene	µg/kg	16	0%	233	245	Gamma	42	0%	259	230	Gamma	t-test (gamma)	0.17	0.866	NSD
Naphthalene	µg/kg	16	19%	11	11	Gamma	42	5%	22.8	17	Gamma	t-test (gamma KM)	3.61	0.001	Adjacent > Upstream
Phenanthrene	µg/kg	16	0%	259	230	Normal	42	0%	616	515	Approx. Normal	t-test	4.35	6E-05	Adjacent > Upstream
											Quantile		4.21	1E-04	Adjacent > Upstream
Pyrene	µg/kg	16	0%	550	545	Approx. Normal	42	0%	1034	1000	Approx. Normal	t-test			
<b>Metals</b>															
Aluminum	mg/kg	16	0%	10200	11000	Gamma	42	0%	6202	5100	Approx. Gamma	t-test (gamma)	-7.08	4E-09	Adjacent < Upstream
Antimony	mg/kg	16	0%	0.27	0.28	Approx. Gamma	42	14%	0.271	0.203	Approx. Gamma	t-test (gamma KM)	-1.13	0.265	NSD
Arsenic	mg/kg	16	0%	8.8	9.05	Gamma	42	0%	6.4	6.15	Gamma	t-test (gamma)	-5.30	2E-06	Adjacent < Upstream
Barium	mg/kg	16	0%	130.8	140	Approx. Normal <sup>(3)</sup>	42	0%	93	90.5	Normal	t-test	-4.66	3E-05	Adjacent < Upstream
Beryllium	mg/kg	16	0%	0.57	0.6	Normal	42	2%	0.386	0.350	Normal	t-test (KM)	-4.77	3E-05	Adjacent < Upstream

Table 6

**Group Comparison Tests Results - Combined 2018 and 2019 Adjacent (to OU1) vs. Upstream Floodplain Soil Data**  
**South Dayton Dump and Landfill Site**  
**Moraine, Ohio**

Analyte	Units	Upstream Samples				Adjacent Samples				Group Comparison Test					
		N	%ND	Mean	Median	Distribution	N	%ND	Mean	Median	Distribution	Test(s)	Statistic	Probability	
<b>Metals (cont'd.)</b>															
Cadmium	mg/kg	16	0%	0.926	0.695	Approx. Gamma	42	0%	0.60	0.44	Gamma	t-test (gamma)	-2.70	0.012	Adjacent < Upstream
Calcium	mg/kg	16	0%	60094	61500	Approx. Normal	42	0%	79095	81000	Normal	t-test	4.49	2E-04	<b>Adjacent &gt; Upstream</b>
Chromium	mg/kg	16	0%	25.5	20.5	Not Normal	42	0%	16	13	Lognormal	t-test (log)	-4.32	1E-04	Adjacent < Upstream
Cobalt	mg/kg	16	0%	8.0	7.95	Approx. Lognormal	42	0%	4.9	4.25	Approx. Lognormal	t-test (log)	-6.18	2E-07	Adjacent < Upstream
Copper	mg/kg	16	0%	30.4	27	Gamma	42	0%	21	16	Gamma	t-test (gamma)	-3.32	0.002	Adjacent < Upstream
Iron	mg/kg	16	0%	19125	19500	Approx. Lognormal <sup>(3)</sup>	42	0%	13056	11500	Approx. Lognormal <sup>(3)</sup>	t-test (log)	-6.63	2E-08	Adjacent < Upstream
Lead	mg/kg	16	0%	44.7	36.5	Approx. Lognormal <sup>(3)</sup>	42	0%	32	24.5	Approx. Lognormal <sup>(3)</sup>	t-test (log)	-3.21	0.003	Adjacent < Upstream
Magnesium	mg/kg	16	0%	22431	22000	Approx. Normal	42	0%	24810	25000	Normal	t-test	1.59	0.128	NSD
Manganese	mg/kg	16	0%	597	565	Approx. Lognormal	42	0%	420	410	Approx. Lognormal	t-test (log)	-4.32	1E-04	Adjacent < Upstream
Mercury	mg/kg	16	0%	0.11	0.11	Gamma	42	2%	0.1	0	Gamma	t-test (gamma KM)	-3.00	0.006	Adjacent < Upstream
Nickel	mg/kg	16	0%	22.5	21	Lognormal	42	0%	15	12.5	Approx. Lognormal	t-test (log)	-5.63	8E-07	Adjacent < Upstream
Potassium	mg/kg	16	0%	1373	1450	Approx. Normal	42	0%	898	830	Approx. Normal	t-test	-6.30	9E-08	Adjacent < Upstream
Selenium	mg/kg	16	0%	0.66	0.715	Not Normal	42	2%	0.8	1	Gamma	WRS <sup>(2)</sup>	345	0.882	NSD
											Quantile	2.42	<b>0.016</b>	<b>Adjacent &gt; Upstream</b>	
Silver	mg/kg	16	0%	0.49	0.35	Gamma	42	0%	0.26	0.18	Gamma	t-test (gamma)	-2.86	0.008	Adjacent < Upstream
Sodium	mg/kg	16	6%	92	96	Not Normal	42	43%	96.2	99	Not Normal	WRS	418	0.154	NSD
											Quantile	1.56	0.118	NSD	
Thallium	mg/kg	16	0%	0.31	0.325	Gamma <sup>(1)</sup>	42	0%	0.21	0.17	Gamma	t-test (gamma)	-4.61	4E-05	Adjacent < Upstream
Vanadium	mg/kg	16	0%	23.7	25	Normal	42	0%	16	15	Normal	t-test	-6.30	1E-07	Adjacent < Upstream
Zinc	mg/kg	16	0%	108	110	Gamma	42	0%	75	60	Gamma	t-test (gamma)	-4.00	3E-04	Adjacent < Upstream
<b>PCBs</b>															
Aroclor-1242 (PCB-1242)	µg/kg	18	100%	43	24	N/A (>50% ND)	42	95%	21.6	23	N/A (>50% ND)	Quantile	0.018	0.986	NSD
Aroclor-1248 (PCB-1248)	µg/kg	18	100%	--	30.5 U	N/A (>50% ND)	42	86%	147	29	N/A (>50% ND)	Quantile	1.01	0.312	NSD
Aroclor-1254 (PCB-1254)	µg/kg	18	13%	642	160	Lognormal	42	29%	104	57	Approx. Lognormal	t-test (log KM)	-3.45	0.003	Adjacent < Upstream

## Notes:

For data sets containing censored data (non-detects), mean values have been calculated using the Kaplan-Meier method (see USEPA, 2015 for details)

NSD - No Significant Difference

A probability of less than 0.05 indicates a statistically significant difference at 95% confidence.

(1) Data distribution was determined by excluding outliers

(2) Could not find a common distribution

(3) Data distribution was determined using Probability Plots